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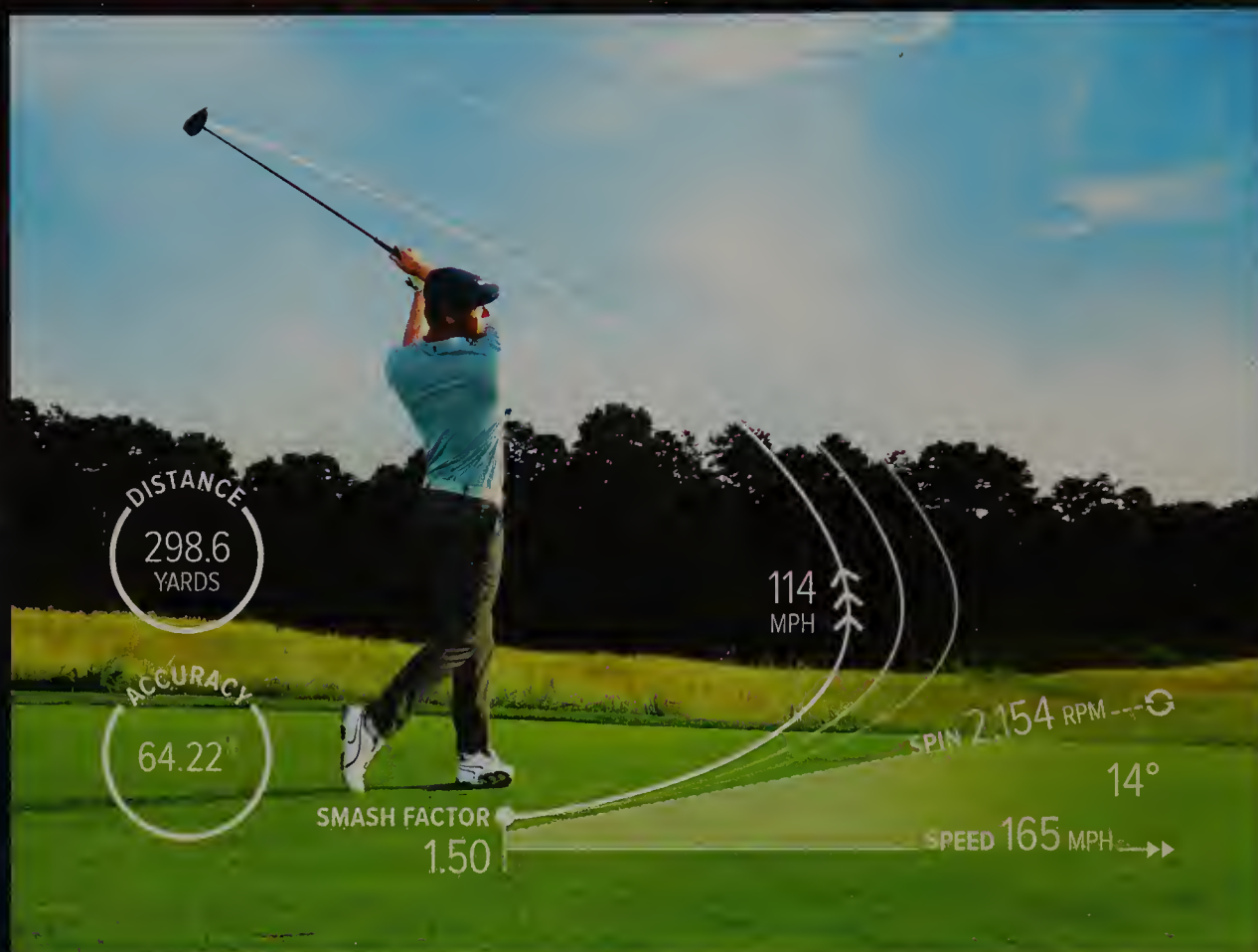


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CANON TAKES A MAJOR STEP INTO HEALTHCARE

Partnering with Toshiba Medical enhances Canon's ability to create life-improving technologies



Left: Fujio Mitarai, Canon Chairman and CEO
Right: Toshio Takiguchi,
Toshiba Medical President and CEO

Of all the advancements made by humankind, surely the greatest is the extension of our lifespans. People are living longer and healthier lives, giving them more time to enjoy the other fruits of human progress. Although many factors have contributed, by far the biggest driver has been improvements in healthcare.

Despite widespread cuts in public spending over the last decade, most developed economies still spend more than 10 percent of their GDP on healthcare. The need for better, smarter and more efficient healthcare services and technologies is set only to rise, whether for the bulging ranks of retirees in North America, Europe and Japan, or the burgeoning young populations of emerging economies.

Traditional Strengths, Future Growth

Long famous for its optical and imaging technologies, Canon Inc. ("Canon"; Headquarters: Tokyo, Japan; Chairman and CEO: Fujio Mitarai) has shifted focus to new pillars of growth, underpinned by market maturation in traditional mainstays such as cameras and office equipment, and disruption caused by smartphone adoption.

In 1996, Canon embarked on the Excellent Global Corporation Plan, a series of five-year, mid- to long-term business plans. 2016 was the first year of Phase V, which aims to increase sales to over 5 trillion yen (\$44 billion), operating profit margins to more than 15 percent, and net income ratio to more than 10 percent for the group by 2020. The first year of the plan saw Canon complete assembly of the four new

business divisions that have repositioned it for future growth: commercial printers, industrial equipment, network cameras and healthcare.

"Canon has been seeking new business opportunities to latch onto fresh market growth, which is expanding due to the global population increase over the last several years; something that supports human life, that possesses affinity with Canon's technology and culture, and brings new growth to our company. We have come to a conclusion that safety and security is the key area of business where we will allocate our resources," says Fujio Mitarai, Canon Chairman and CEO.

As Canon enters the second year of Phase V, it has identified healthcare and network cameras—representing “safety and security”—as the two most promising sectors for growth. The first step in the strategy shift that took Canon to its present launch pad was the acquisition in 2010 of Océ, a Dutch commercial printing and packaging company with a 130-year history. Then, in 2014, Canon bought Texas-headquartered Molecular Imprints, a world leader in nanotechnology imprinting for semiconductors. In the same year, it acquired Denmark-based Milestone Systems, a pioneer in open-platform video management software. That was followed in 2015 by the purchase of Swedish network video surveillance equipment maker Axis Communications. These two most recent major European acquisitions provided Canon with a strong global presence in the fast-growing network camera sector.

At the end of 2016, Canon acquired fellow Japanese company Toshiba Medical Systems Corporation (“Toshiba Medical”; Headquarters: Tochigi Prefecture, Japan; President and CEO: Toshio Takiguchi), in a deal worth approximately \$6 billion. The global diagnostic imaging market was worth \$27.82 billion in 2016 and estimated by Market Data Forecast to be growing at

6.6 percent annually, on course to reach \$38.30 billion by 2021.

Although Canon has identified healthcare as a key new business, it is also in a very real sense going back to its roots, tapping into its traditional strengths while repositioning itself for the future.

Medical Background

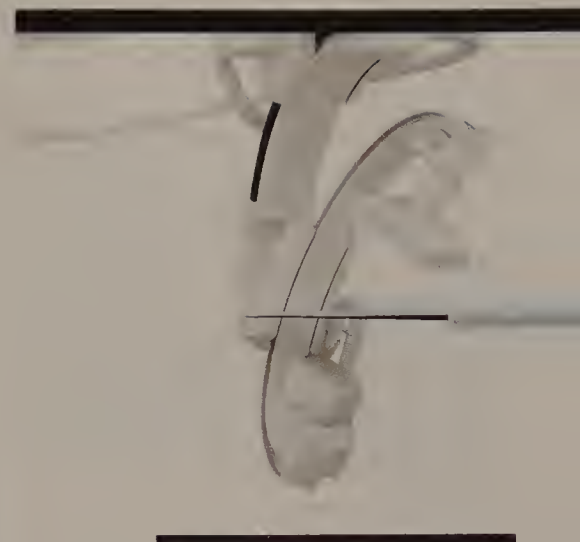
“As a doctor, Canon’s first president aspired to make medical equipment a core Canon business area. But at the time our management resources were invested in other areas, and we were only able to make relatively simple devices such as flat panel detectors for digital radiography and ophthalmic equipment,” says Fujio Mitarai, Canon Chairman and CEO. That certainly understates the achievements of a company whose innovations include photoacoustic tomography technology (selected for development by Japan’s national ImPACT program¹), retinal cameras, digital radiography, proprietary high-speed dynamic X-ray imaging sensor technology, medical robotic systems and minimally invasive technologies since its entry into the sector with Japan’s first indirect X-ray camera in 1940.

Having conducted Japan’s first research into X-ray tubes in 1914, Toshiba Medical’s background in healthcare dates back even further than Canon’s. Since that time, the company has consistently contributed to the advancement of healthcare technology and pioneered a number of world-firsts in medical equipment.

“During their history they accumulated a rich pool of technology,” says Mitarai. “Toshiba Medical joining the group helps us make a full-fledged entry in the medical devices business.”

The Digital Era

During the 1970s and 1980s, when electronics developed rapidly, various medical technologies were created. Some,



Diagnostic X-ray System

such as CT and MRI scans, eventually became Toshiba Medical’s core business. “At that time, stomach cancer was the number-one cause of death in Japan, but thanks to medical and technological advancements, to which we were able to contribute, new diagnostic equipment was developed that enabled cancer to be identified at a very early stage,” says Toshio Takiguchi, Toshiba Medical President and CEO. “Because of this, deaths from stomach cancer were greatly reduced.”

At the turn of the millennium, as technology advanced still further, Toshiba Medical created new innovations such as X-ray CT scanners, which with a single rotation, can capture an image of the entire brain or heart. As a testament to its R&D capabilities, the company currently ranks No.1 in Japan and No. 3 in the world in CT scan equipment.

Shared Philosophies

Throughout its history, Toshiba Medical has followed its “Made for Life” corporate ethos, while Canon’s philosophy since its foundation has been *Kyosei*—a Japanese



Diagnostic Ultrasound System

¹ ImPACT is a program led by the Council for Science, Technology and Innovation to encourage high-risk, high-impact R&D, with the goal of realizing a sustainable and expandable innovation ecosystem. The Council serves as the Japanese government’s command center for innovation policy.

“Toshiba Medical joining the group helps us make a full-fledged entry into the medical devices business,” says Mitarai.

term which it defines as, “all people, regardless of race, religion, or culture, harmoniously living and working together into the future.”

Mitarai and Takiguchi have found their respective companies’ philosophies to be closely aligned and believe together they will deliver improved medical technology, and thus, better healthcare and quality of life.

“The devices we make are different, but care for our customers is a shared value,” says Mitarai.

Stronger Together

Come the start of 2018, Toshiba Medical will be renamed Canon Medical Systems Corporation. Any integration of companies is a challenge, but Canon and Toshiba Medical’s operations complement each other without overlapping to any significant degree.

“With Canon’s production capabilities and Toshiba Medical’s development know-how, this partnership will improve and optimize our production system, which in turn will take Toshiba Medical to an even higher level,” says Mitarai. “Not only will we launch competitive products in the market, but by using the assets gained from re-organizing our R&D structure, we will grow our healthcare business.”

Canon currently invests around 8.9 percent of its revenues—\$29.3 billion in the last fiscal year—in R&D to maintain its lead in cutting-edge technologies. Its



Fujio Mitarai, Canon Chairman and CEO

commitment to R&D is evidenced by the more than 4,000 patents it has registered in the U.S., the third-highest number of any company worldwide.

Although the two companies’ origins are in Japan, both are truly global enterprises. About 80 percent of Canon’s revenue comes from overseas and it does business in more than 220 countries and regions, while Toshiba Medical operates in more than 140. Canon plans to utilize Toshiba Medical’s global healthcare sales network to strengthen its presence in the sector. Meanwhile, in the other direction, Toshiba Medical will make use of Canon’s expertise and efficiency in design, manufacturing and marketing to optimize its operations and develop further world-beating technologies for the global market. Stronger together, the unified company is uniquely positioned to meet rapidly expanding healthcare needs worldwide.

New Frontiers: Biomedical Devices & Genetic Medicine

Leveraging its depth of knowledge in imaging, Canon opened the Healthcare Optics Research Laboratory in Cambridge,

Massachusetts in June 2013. Following the tenets of *Kyosei*, the facility collaborates on research with Massachusetts General Hospital, and Brigham and Women’s Hospital to create new technologies in biomedical optical imaging and medical robotics.

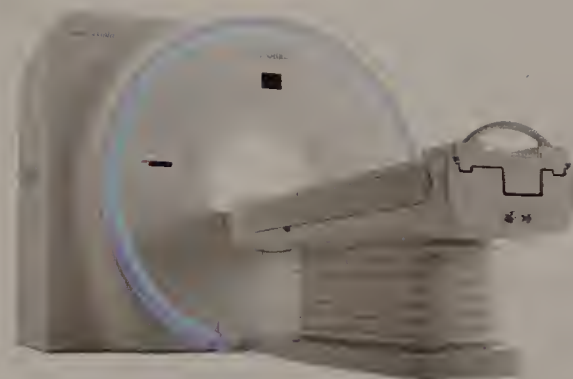
One of its flagship projects is a tiny, high-resolution endoscope the thickness of a human hair, which can produce 3D images of parts of the human anatomy that were previously inaccessible to endoscopic cameras. The research team is also working on a robotic control system that will enable medical professionals to maneuver the endoscope through narrow spaces in the body, with potential applications in neurosurgery, orthopedics, and laryngoscopy.

One field of healthcare with great potential is genetic medicine, including areas such as personalized medicine, gene therapy and predictive medicine. Canon BioMedical was established in Melville, New York in 2015 to conduct research into equipment to identify genetic diseases, and has already delivered its first products to researchers in the field. Canon’s healthcare products had previously been based around its strength in imaging, but this represents a ground-breaking area for the company.





Clinical Chemistry Analyzer



MRI

New Frontiers: Big Data & Artificial Intelligence

The rapid advancement of Artificial Intelligence (AI) is set to alter the landscape of nearly every part of human life, including fundamental shifts in healthcare. According to *Bloomberg Intelligence*, predictive analytics can reduce healthcare costs, find the best path for patient treatment, and improve the quality of medical care by refining diagnoses.

"Doctors are drowning in data and information, and meanwhile the world today demands high-quality healthcare services delivered in an efficient manner, so we need to find a balance," says Takiguchi. "AI could take on that role. Clinical value, operational efficiency and financial value are our three corporate missions. AI can help us deliver those."

Toshiba Medical already took a bold step into the greater utilization of data in healthcare with its acquisitions of data-based companies prior to joining Canon: Vital Images in 2011, Olea Medical in 2015 and Karos Health in 2016.

By some estimates, about \$2 trillion is wasted in healthcare spending annually; something that collaboration between tech companies and medical equipment makers can help address through more precise and personalized medicine delivered by



Toshio Takiguchi,
Toshiba Medical President and CEO

connected devices leveraging AI. The false diagnosis rate of cancer is 20 percent, according to *Bloomberg Intelligence*, leading to both waste in precious resources and mental anguish for patients.

"A concrete example is CT or MRI scans, which can capture images in a very

Mitarai and Takiguchi have found their respective companies' philosophies to be closely aligned and believe together they will deliver improved medical technology, and thus, better healthcare and quality of life.

accurate manner, but the way doctors interpret that information can be different, although it shouldn't be. AI can help solve that problem," adds Mitarai.

The lofty goal of the new combined group is nothing short of improving human life.

"At the risk of sounding dramatic, I think that the two companies together can contribute in some small way to enhancing the level of healthcare technology," says Mitarai.

Canon



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**"WE WANT TO BE THE
WHOLE UNIVERSE
OF VIDEO CONTENT"**

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"We used to have middle-aged men operating a crane. Now you'll find a control room with 22-year-old women with perfect eye-hand coordination doing it"

p30

"I make sure every year is a hard year. If it's easy, I'm not pushing hard enough"

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"From the moment the average child learns to read and write in Brazil, he starts piling up deficiencies"

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1

"The story is on Stephen Miller, one of the president's advisers. He's among Trump's staunchest defenders and may also have a profound influence internally."

"This story feels vaguely familiar. What makes him different from someone like Steve Bannon?"

"He's a lifelong conservative with years of political experience and the ability to shape policy directly. He also seems to truly believe Trump."

"Conviction is important. For example, people always tell me cookies aren't a superfood. To which I ask: Which makes you feel better, a chewy double chocolate chunk sea salt cookie or a handful of kale? Case closed."



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PAUL CHAPMAN
Chief Information Officer, **box**

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Address 731 Lexington Ave., New York, NY 10022
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PARTNERS IN MIND

NEC raises the bar on human capability
with artificial intelligence

Ask around about Artificial Intelligence (AI), and one would surely find unfettered minds drawing association with popular perceptions that mirror *The Terminator's* apocalyptic undertones. Though intriguing, they could not be further from the realities of modern-day AI applications, which center on deriving meaningful value by filling gaps in human limitations.

Those who follow the AI space closely would undoubtedly be familiar with deep learning's growing influence—notably after AlphaGo's victory over the world's best Go player. What many fail to realize, at this stage, is the technology's lack of discretion to determine the validity of data fed to it. Absent such discernment, deep learning cannot, therefore, tell us why it arrives at its "best answer." This, in fact, could prove detrimental when used in high-stakes environments.

Instead, NEC sees collaboration between AI and humans as key to successful real-world outcomes. When deployed at scale, with human discernment, AI can boost

Customer-AI Interaction

Gartner predicts by 2020,

85 %

*of customer interactions will be
managed by AI*

operational efficiencies and support top management decision-making by offering sound, objective reasoning, even in unfamiliar situations.

Down to the crunch, productivity improvements, along with sales and market-share growth, could well be tangible markers of AI's real-world contributions.

Real Business Intelligence

Tougher macroeconomic conditions in recent years have left policymakers and business leaders scratching their heads in attempts to find new growth levers. From a technological perspective, one perennial issue has yet to be addressed fully: the continued reliance on existing technologies. In this fast-evolving world, no industry has been impacted more by technological

What makes AI so great?

While it is not surprising that AI can calculate exponentially faster than human beings, the ability to scale human cognition to stratospheric levels with the utmost accuracy is still its greatest strength.

Learn more: > www.bloomberg.com/ad/nec/ai

disruption and consumer behavioral shifts than retail. Bloomberg Intelligence says brick-and-mortar retailers may be at a watershed moment, as plunging market share and store traffic force fundamental changes to a 100-year-old model.

So where do retailers start?

The line starts with a second look at legacy instore technologies. Though POS systems continue to equip store managers with critical information, useful data on customer preferences are only obtained when products are purchased. Here is where AI like that of NEC's "remote gaze detection technology" empowers retailers with insights on browsing habits by tracking line-of-sight, revealing how customers react to products of interest, even if they don't buy them.

By complementing legacy POS systems, AI integration in store environments could, indeed, be retail's harbinger of a new normal.

FinTech's Secure Break

The Bank of England calls the blockchain the "first attempt at an internet of finance." And for good reason—what was, not so long ago, a relatively unknown technology to verify and record bitcoin transactions, may well, in the near future, alter the global financial system as we know it.

According to Bloomberg Intelligence, cross-border payments could be made significantly faster, and trade finance may be streamlined and improved with the blockchain's transparency. Yet even with industry choirs singing its praises, the blockchain is not without its critics. In a Greenwich Associates report titled *Securing the Blockchain*, 63 percent of participating banks viewed confidentiality of transactions as a major concern. As such, the means to comply with strict security regulations should consistently be an adoption imperative.

Having, for years, developed a proven track record as a major player in the public safety space, NEC has taken the next leap by extending its portfolio of physical security capabilities to the ever-evolving cyber sphere, in the field of finance.

government agencies establish greater transparency, and clarity, as a precedent to more seamless cooperation.

A case in point is Argentina's Tigre Operations Center, a 24/7 integrated public safety platform that comes equipped with the world's most accurate facial recognition technology powered by NEC AI. The Center collects, analyzes and disseminates information sourced from thousands of cameras installed around Tigre city, allowing

"By analyzing the data in real-time and detecting suspicious movements automatically, vehicle theft rates have decreased by 80 percent."

*Maria Eugenia Ferrari
Secretary of Citizen Protection, Tigre*



Do you really know who banks with you?

In a recent collaborative stint with Sumitomo Mitsui Banking Corporation, NEC demonstrated its Predictive Analysis Automation technology that had the intelligent means to analyze mountains of data such as customer information, access logs and deposits/withdrawals. Individual customer needs could be predicted down to the type of services that matched those needs. And the AI did in a day what it would have taken several data scientists two to three months to accomplish.

A Citizen's Safety Net

All around world, every day, news reports brim with stories of law and order gone awry in cities. National and municipal governments are investing more than ever to ramp up public safety. To quantify, MarketsandMarkets research firm projects such expenditures to grow from about \$220 billion in 2015 to around \$370 billion by 2020.

Committing ever more resources may work to temporarily reduce crime. But at best, these improvements are short-lived. This is where Artificial Intelligence (AI) turns the tables. By consolidating vast amounts of surveillance information at hyper speed with pinpoint accuracy, AI can help

operators to hasten decision-making, while enabling fluid inter-agency collaboration.

Although AI helps solve crimes already committed, its core strength still lies in their prevention, which can go a long way to make cities much safer than they are at present. Higher-speed and higher-precision capabilities could possibly extend to new areas of application, from searching for lost children, to even providing improved customer service.

All said, the possibilities to improve citizen wellbeing remain endless with AI. There has never been a better time to further the greater good than there is today.

Orchestrating a brighter world

NEC

Opening Remarks

The Boy Scout Leading State

By Romesh Ratnesar

Rex Tillerson's success may depend on his shedding instincts that led Trump to hire him as America's top diplomat

After meeting Donald Trump for the first time, in New York on Dec. 6, Rex Tillerson told his wife, Renda, that the president-elect had offered him the job of secretary of state. Tillerson had spent his entire 41-year career at Exxon Mobil Corp., the previous decade as chief executive officer. His assets are worth an estimated \$400 million. He'd planned to step down in the spring of 2017 and retire to a ranch near his hometown of Wichita Falls, Texas. Few people close to Tillerson believed he was destined for government service, except his wife. "You didn't know it, but you've been in a 41-year training program for this job," she told him. "You're supposed to do this."

Tillerson recounted this conversation in his welcome remarks to a few hundred Department of State employees on Feb. 2, the day after the Senate voted to confirm him. The story drew laughs and a round of applause. Tillerson's plain-spoken, shirt-sleeves style calmed the nerves of the diplomatic corps, which had been routinely pilloried by Trump and his hard-right advisers. "You have accumulated knowledge and experience that cannot be replicated anywhere else," he told the crowd jammed into the department's C Street lobby. "Your wisdom, your work ethic and patriotism, is as important as ever." His charges had reason to believe that with a pragmatic corporate titan in command, the department would reassert its primacy over American foreign policy—and ease global anxieties about the new president's nativism, naiveté, and flirtations with noxious strongmen.

It hasn't happened. Far from curbing Trump's excesses, Tillerson has been blindsided by them: a travel ban that alienated much of the Muslim world and originally barred the entry of Iraqis who'd fought alongside U.S. troops; a crackdown on immigrants that's poisoned relations with America's third-largest trading partner, Mexico; Trump's suggestion that the U.S. could live with a permanent Israeli occupation of the West Bank, so long as everyone else is cool with it. Tillerson was absent from White House meetings with the leaders of Canada, Japan, and Israel. His pick for deputy secretary, Elliott Abrams, was rejected after Trump learned Abrams had criticized him during the 2016 campaign. Of the 44 highest-ranking positions at the State Department, the Trump administration has filled one: Tillerson's. Even as Tillerson and John Kelly, secretary of the Department of Homeland Security, arrived in Mexico City on a

goodwill mission on Feb. 23, Trump went out of his way to undercut them. "We're going to have a good relationship with Mexico," he told reporters in the White House, "and if we don't, we don't."

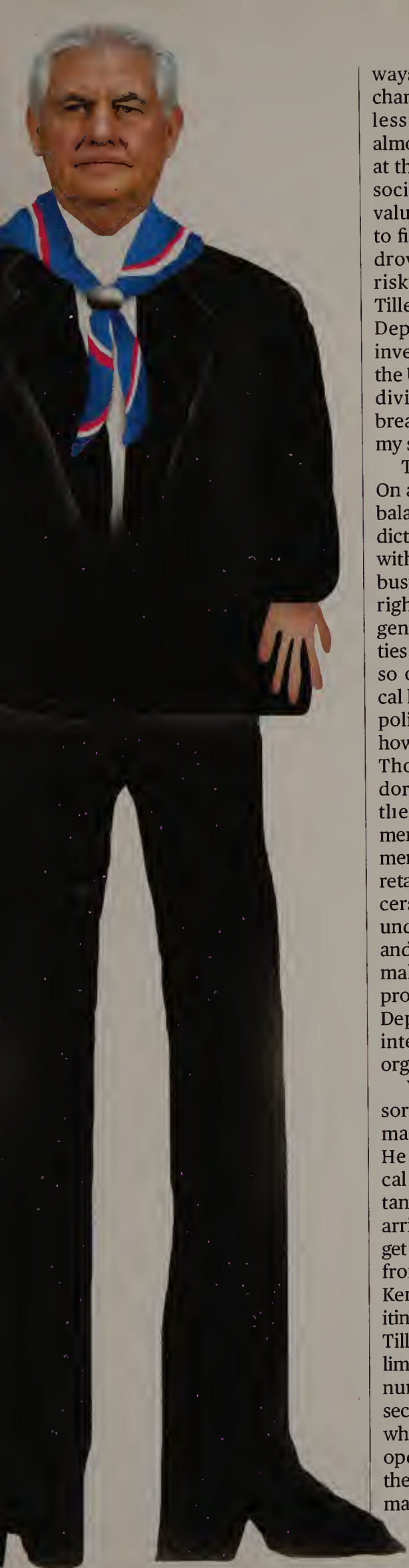
Is this what Tillerson signed up for? Among career officials at the State Department, the initial relief at his arrival has given way to fears that the White House has already sidelined him. Tillerson lacks the ideological fervor of West Wing adviser Steve Bannon; the battle-tested experience of Kelly, Secretary of Defense James Mattis, and National Security Adviser H.R. McMaster; or the influence of Trump's son-in-law, Jared Kushner. Tillerson has signaled little inclination to raise his public profile. He's yet to hold a press briefing or send a tweet. Even so, the 64-year-old engineer possesses the intelligence and temperament to be a successful secretary of state—even a great one. But that will require shedding instincts that put him in the job in the first place.

Tillerson was introduced to Trump by former Defense Secretary Robert Gates, who, like Tillerson, had served as national president of the Boy Scouts of America. Tillerson's father, Bobby Joe, worked as an administrator for the Boy Scouts in Huntsville, Texas; Rex was an Eagle Scout.

As Steve Coll wrote in his 2012 book, *Private Empire: ExxonMobil and American Power*, Tillerson's devotion to the Scouts runs so deep that he devised a performance-incentive program at Exxon based on the merit badges Scouts receive for achieving their goals. Employees earned medals, Coll wrote, based on leadership, teamwork, safety performance, and technical excellence: "Even managers who scoffed at Tillerson's merit badge-inspired regime competed to complete their collection, either because they were naturally competitive and couldn't help themselves or because they thought it would enhance their career prospects."

By the time Tillerson left Exxon, the company employed 75,000 people and conducted business in some 200 countries. The State Department has almost as many employees—more than half of them "locally employed" foreign nationals who work at embassies and consulates abroad—serving in 190 countries. Although comparable in global reach, the organizations differ in basic





ways. Tillerson's tenure at Exxon was characterized by the company's relentless pursuit of energy resources in almost every corner of the globe, often at the expense of the environment and social justice. Delivering shareholder value was its sole aim. "The incentive to find new oil in a constrained world drove all of the major companies to risky frontiers," Coll wrote. As CEO, Tillerson famously dismissed the State Department's objections to an Exxon investment in Iraqi Kurdistan, which the U.S. feared could widen Iraq's ethnic divisions and lead to the country's breakup. "I had to do what was best for my shareholders," he said.

The work of diplomacy is messier. On a daily basis, foreign service officers balance a bundle of competing, contradictory goals: maintaining relationships with host nations, promoting American business interests, monitoring human rights, issuing visas, collecting intelligence, hosting public events, forging ties with civil society organizations, and so on. The State Department's political leadership in Washington sets broad policy goals, but embassies determine how they're carried out on the ground. Those embassies are led by ambassadors appointed by the president, not the secretary of state, with management responsibilities delegated to senior members of the foreign service. The secretary has little direct authority over officers in the field—or even the dozens of under secretaries, assistant secretaries, and office directors in Washington who make most decisions about spending, programming, and personnel. The State Department resembles less a vertically integrated corporation than a loosely organized global conglomerate.

Yet more than his recent predecessors, Tillerson has an opportunity to make the bureaucracy work for him. He comes to the job without political baggage or ambitions. He's a reluctant and fastidious traveler who likes to arrive in foreign countries a day early to get a good night's sleep—a marked change from his peripatetic predecessor, John Kerry, who was known to rip up travel itineraries on the fly. Since joining State, Tillerson has made clear his intention to limit the size of meetings and reduce the number of seventh-floor principals—the secretary's executive management team—which some officials hope will streamline operations and return policymaking to the department's geographic and subject matter experts.

Tillerson opens 10 a.m. senior staff

His department isn't an integrated corporation—more like a loosely organized conglomerate

meetings by asking, "Are our people safe?" Department veterans appreciate his concern for the security of diplomats overseas but remain uncertain about his ability to defend them from political attacks at home—such as White House Press Secretary Sean Spicer's threat that foreign service officers who objected to Trump's travel ban "should either get with the program, or they can go." In his welcome remarks to staffers, Tillerson rebuked Spicer. "The individuals who comprise this department are among the finest public servants in the world," he said. Senior State Department officials are livid at the White House's proposal to cut by a third the \$50 billion base budget for the department and the U.S. Agency for International Development. South Carolina Republican Senator Lindsey Graham declared the Trump plan "a disaster" and "dead on arrival" in Congress. So far, Tillerson has remained characteristically impassive, but protecting the State Department's resources will require him to step outside his comfort zone and send clear, vigorous, and public messages about the value of diplomacy as a tool of U.S. power.

Past secretaries have traded on their Oval Office access to win bureaucratic battles and gain leverage with foreign counterparts. Tillerson's challenge is different: To earn the trust of America's allies and the department itself, he must show a willingness not just to speak for Trump, but also to defy him. On a range of issues—climate change, North Korea, and Russian assertiveness in Europe come to mind—Tillerson will need to reassure allies that America intends to adhere to its obligations and preserve global order. Trump's Feb. 28 speech to Congress struck a conventional, conciliatory tone on foreign policy, but no one knows how he might handle a crisis. At Exxon, Tillerson frequently cited the Boy Scout oath to "do my best to do my duty to God and my country... [and] to keep myself physically strong, mentally awake, and morally straight." That pledge is about to be put to the test. **B**

Ratnesar, a former Bloomberg Businessweek editor, was chief of staff in the State Department's office of public diplomacy and public affairs from 2016-17.

Trustworthy—Not Alternative—Statistics

Government agencies shouldn't be pressured into producing data to support Trump's beliefs



Donald Trump's penchant for "alternative facts" raises a troubling question: What if the same instinct leads him to pressure government agencies—the ones that track everything from jobs to air quality—into producing data to support whatever he wants to believe? If he won't draw the line, Congress should.

Two recent cases suggest where things may be headed. Trump's officials have considered changing the way they calculate foreign-trade balances, turning some surpluses into deficits and bolstering the president's case for tearing up free-trade deals. In another, the administration instructed its economists to forecast U.S. growth rates a full percentage point higher than consensus estimates—an alteration that, if included in Trump's final budget proposal, would mask the effect of his tax cuts and spending plans on the nation's finances.

To be sure, lying with statistics is a time-honored tradition. But the character of the changes being considered, together with Trump's record of fudging everything from TV ratings to his own net worth, suggests a willingness to go further than his predecessors. And the more the administration adopts unrealistic goals, the more reason it will have to keep on tampering, so it can claim all is going to plan.

The president has a lot of power to mess with government statistics. Some laws and rules seek to protect the integrity of federal indicators, including the monthly jobs report and international trade data. But they don't cover a lot of data that some agencies publish at their own discretion, such as the air quality statistics from the Environmental Protection Agency. Also, they don't necessarily prevent Trump's political appointees from eliminating indicators or changing the way they're calculated.

The damage could be great. Businesses rely on government data to spot trends in the economy and make investment and hiring decisions. Economists and elected officials need reliable figures to assess the effects of policies. Any tampering would

sharply increase uncertainty and costs—and, by the way, weigh heavily on the country's international standing (as Argentina's experience with juking its inflation statistics shows).

So what can Congress do? At a minimum, it must reject any budget or trade proposal founded on demonstrably fake numbers. In addition, it should demand assurances from Trump appointees—particularly to institutions such as the Bureau of Labor Statistics, where the commissioner's term recently expired—that they will maintain the highest standards of impartiality. Third, it must ensure that the statistical agencies get the budgetary resources they need to do their jobs.

The U.S. government produces some of the best and most complete data in the world—information that helps the economy work well. Trustworthy statistics are a vital national asset. Congress, take note.

Europe Begins to Take Defense Seriously

Thanks to Trump and Brexit, EU countries are getting realistic about military spending

Say this for Trump: He's forcing Europeans to think more seriously about how to protect and defend their continent. His disparagement of NATO goes too far, and his focus on getting Europeans to spend more on defense is misplaced. That said, European nations have for too long treated their defense budgets as an extension of social policy. Expenditure on personnel is more than 50 percent of military spending in almost all European Union countries compared with about a quarter in the U.S. Meanwhile, Europe's spending on equipment and research and development is barely 20 percent compared with about 30 percent in the U.S., and only about 22 percent of procurement is collaborative.

The European Commission has a proposal to make European military spending more rational. But such top-down efforts haven't amounted to much. There are hundreds of cooperative military projects in Europe, but many of these efforts are bilateral and ad hoc. Without a more coherent framework, they won't close the large gap in spending and capabilities between Europe and the U.S. or make European militaries more effective.

Because of Brexit and Trumpism, European nations may finally be getting realistic about the urgency of preparing for threats from within and outside the continent. NATO's intervention in Libya showed that European nations are willing and capable of leading such missions.

None of this is to say that the EU requires its own army. It's only to point out that Europe needs to do more to ensure its collective security and that part of the answer lies in a more flexible (and less America-dominated) NATO. As Europeans consider changes, their focus should be less on whether NATO members meet the alliance's requirement for overall military spending and more on how and where they spend their money. **B**

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By Kyle Stock

\$65m

▲ Penguin Random House paid handsomely for rights to forthcoming **books by former President Barack Obama and First Lady Michelle Obama**. They will donate a portion to charity.

▲ SoftBank's OneWeb satellite operator **will merge with Intelsat, a debt-laden rival**. Together, they plan to conquer the world with low-cost internet access.

▲ Snap priced the shares in its initial public offering at **\$17 each**, giving the maker of disappearing-photo app Snapchat a market value of about **\$20b**

but its auction margins improved.



▲ To the moon, Elon! **SpaceX** said it will **rocket two private citizens on a manned lunar mission sometime next year**. The plan is for a nonstop round trip. (Read: No golfing.)

▲ Starbucks said it will open its **first cafe in Italy next year, a 26k** square-foot operation in Milan, where it will also roast beans. It will be the company's fifth store of this type in the world.

▲ Lowe's continues to **cash in on the fixer-upper phenomenon**.

Sales at stores open more than a year jumped

5.1% in the most recent quarter, more than double Wall Street's prediction.

▲ **U.S. consumer confidence** hit its highest point in 15 years in January.

3/2001
116.9

2/2017
114.8



Ups



▲ Comcast struck a deal to integrate **Alphabet's YouTube** into its Xfinity X1 service. The app will be available to about half of the 22.5 million households that are its pay-TV customers.

Downs



▼ Target's shares tumbled

12%

in March 1 trading after the company announced a plan to widely cut prices and build its e-commerce business. Profits in 2017 would be about 25 percent below Wall Street estimates, it said.

▼ Sony said it's **sold only about 1 million of its \$400 virtual-reality headsets** since putting them on the market in October. It took the company just one day to sell as many PlayStation 4s when the consoles reached shelves in November 2013.



▼ Is it game over for MarioKart? Nintendo is in a legal dispute with a Japanese **startup** that outfits customers like characters in the popular **Mario Kart** game and then sends them speeding through the streets of Tokyo in go-karts.

▼ Bridgewater Associates founder Ray Dalio **will step down as co-CEO of the world's biggest hedge fund on April 15**. He will remain co-chief investment officer.

▼ Wells Fargo is **withholding 2016 bonuses from eight senior executives** and clawing back their pay from 2014, as it cleans up its bogus-account scandal. The move will recoup

\$32m

▼ Attorneys representing 69,000 women in a **long-running class-action arbitration case against Sterling Jewelers** were granted permission to make public sworn declarations from employees attesting that sexual harassment and discrimination were rampant at the company in the late 1990s and 2000s. The company said the statements are "not substantiated by the facts."

▼ Thomas Campbell, director of the Metropolitan Museum of Art, resigned under pressure from trustees. **Although attendance at the Met's three locations hit a record 6.7 million in 2016**, the institution is grappling with a deficit.



▼ Takata pleaded guilty to fraud and providing false data in its ongoing exploding airbag saga. **The company will pay \$1 billion in a settlement to victims and carmakers.**

"The criticism we've received is a stark reminder that I must fundamentally change as a leader and grow up."

▼ Uber Technologies CEO Travis Kalanick's apology to employees after a dashboard video surfaced of him having an argument with a driver over the company's fare structure. More ▷ p26

▼ Surge pricing is coming to pizza. Papa John's is testing a **\$2.99** "priority" fee that lets customers jump to the top of the delivery line.



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21

Samsung's New Board Gets Back to Business

► The top Korean conglomerate has tussled with prosecutors before

► "It's just literally unthinkable in chaebol society" to depose the heir

"No chaebol chiefs want to lose control over their empires," says one analyst. "Their tendency is to lie flat on the ground, tough it out, and then resume business as usual."

While this could be a commentary on Seoul today, the reporting comes from a *Businessweek* article in the late 1990s, when South Korea was ensnared in the Asian financial crisis. Then South Korea's corporate empires were under attack. The Korean economy was struggling, and politicians were responding by pledging to reform the chaebol, the family-controlled conglomerates that dominate businesses ranging from shipbuilding to chipmaking. The conglomerates waited for the storm to pass.

For the chaebol, reformers come and reformers go. In the decades since the Asian crisis, politicians have made repeated calls for reform of the conglomerates, and prosecutors have won criminal convictions of top executives. But the chaebol showed enough flexibility in their business, so that the market value of the top nine still accounts for roughly 60 percent of the Kospi 200 stock index. Their combined revenue is about 75 percent of gross domestic product.

With the arrest of Jay Y. Lee, the 48-year-old vice chairman of Samsung Electronics Co. and dauphin of the dynasty controlling the **Samsung Group**, the chaebol are again under

pressure from the state. Since the crippling heart attack of his father, Samsung Electronics Chairman Lee Kun-hee, in 2014, Jay Y., his only son, has been de facto head of Korea's most powerful chaebol. On Feb. 28, South Korea's special prosecutor indicted the younger Lee on bribery and related charges. It's the latest move in connection with a political and corporate scandal that's led to the impeachment of President Park Geun-hye. Both Samsung Electronics and Lee deny he did anything wrong. The special prosecutor on Feb. 28 indicted four other Samsung executives alongside Lee.

Many chaebol bosses have been accused of wrongdoing. Lee's father ►

◀ was convicted of bribery in 1996 and tax evasion in 2008; he received suspended prison sentences and presidential pardons for both convictions. In 2007 the chairman of **Hyundai Motor Group**, Chung Mong-koo, was convicted of embezzlement and breach of duty; he received a suspended three-year prison sentence and a pardon. Chey Tae-won, chairman of **SK Group**, was convicted twice and pardoned twice. Kim Seung-youn, chairman of **Hanwha Group**, was pardoned in 2008 for assault.

With a presidential election later this year, the scandals are strengthening the opposition Democratic Party of Korea, which has called for stronger measures against the chaebol including reforms to unravel cross-shareholdings and improve corporate governance. The government has failed to crack down in the past, but “this time might be different,” says Jong-sung You, a senior lecturer at Australian National University’s College of Asia and the Pacific. “People think the old practices of corruption and collusion will jeopardize Korea’s economy in the long run.”

The arrest of the younger Lee comes at a time of economic weakness and political upheaval. Household income last year grew just 0.6 percent from 2015, the slowest pace since the statistics office started compiling data in 2003; household spending also set a record low. Economic uncertainty is contributing to a weak investment climate, the government said on Feb. 27.

Korea also needs to address longer-term problems such as an aging population and an underdeveloped small- and midsize business sector, says Oliver Salmon, an economist with advisory firm Oxford Economics in Singapore. The conglomerates have absorbed much of the available capital in Korea. “The chaebol have really strangled investment” in smaller businesses, he says. “The growth model of the past 40 years is not so good now.”

Lee’s legal woes haven’t slowed Samsung Electronics. Shares in the chaebol’s flagship company have held steady since Feb. 17—the day a Seoul court issued an arrest warrant for Lee. Samsung Electronics showed off two new tablets and a virtual-reality viewer on Feb. 26 and will unveil its latest smartphone on March 29.

Even with the de facto head of Samsung Group in custody, there won’t be a power vacuum, says Park Ju-gun, president of Seoul-based corporate watchdog CEOscore: “Lee will be able to make orders on new businesses from behind bars.”

And Lee doesn’t need to worry about a sibling stepping into his role at Samsung, says Kim Sang-jo, a professor at Hansung University. “It’s just literally unthinkable in chaebol society” to depose the designated heir, even if he’s imprisoned, Kim says. “No matter how long he will be away, all people at the group will just wait for Lee to return to his job.” As history shows, the tough-it-out strategy has proved remarkably effective. —Bruce Einhorn, Sohee Kim, and Jungah Lee

The bottom line The chaebol system, which has survived many crises, may be harming South Korea by suffocating small and medium-size businesses.

Labor

Job Switchers Solve An Inflation Mystery

▶ **Tight labor markets won’t necessarily lead to higher prices**

▶ **“Job-to-job changes...are strongly predictive of wage increases”**

Adrienne Heintz, an Atlanta marketing employee, has discovered a reliable way to earn higher wages, and Federal Reserve economists are taking note. The Auburn University alumnus changed jobs twice in the past two years and got above-average raises of

10 percent and 8 percent as a result. “Switching positions internally or externally is definitely the fastest way to a larger salary,” says Heintz, 28.

More Americans are changing employers in search of better pay. That trend is attracting the attention of labor economists, who are increasingly studying how job-hopping Americans drive compensation gains and affect the traditional interplay of low unemployment, wage gains, and inflation.

Economists led by Jason Faberman at the Chicago Fed studied data from 2013 to 2015. They found that 23 percent of employees were looking for another job in any given week, putting in four or five applications over four weeks. In addition, employers were poaching workers, with 27 percent of job offers to the employed arriving unsolicited. Job switching is “a good sign for the economy” and “an indication of dynamism,” says retiring Federal Reserve Bank of Atlanta President Dennis Lockhart.

And according to the Atlanta Fed’s wage tracker, which monitors wages of continuously employed workers, Americans who are willing to change jobs do benefit. The data showed job switchers earned 4.3 percent more in July 2016 than a year earlier, while people who remained in the same job enjoyed only a 3 percent increase. “Job-to-job changes and the threat of job-to-job mobility are strongly predictive of wage increases,” says David Wiczer, an economist with the St. Louis Fed.

In the past, wage increases often contributed to rising inflation. Yet that relationship has broken down, and job switchers may be part of the explanation. Studying the impact of job changes “is a more nuanced and deeper analysis

The link between the jobless rate and inflation rate has broken down of labor markets and gives you a better picture of what’s really going on,” says

James Bullard, president of the Federal Reserve Bank of St. Louis. “Look at the late ’90s: Unemployment went down to 3.8 percent, and we didn’t get all that much inflation.”

Analysts surveyed by Bloomberg don’t expect lower unemployment rates to fan consumer prices in coming years either. They estimate inflation will remain at the Fed’s 2 percent

Out of Step

The relationship between inflation and unemployment has been shaken



target in 2018 and 2019 even as the jobless rate drops below today's 4.8 percent, which central bankers consider full employment.

That's where people like Heintz come in. Job switchers often receive better compensation only when their productivity increases, says Giuseppe Moscarini, a Yale professor and visiting scholar at the Philadelphia Fed. Heintz says her raises came with increased responsibility at jobs that better match her skills—boosting her productivity. When workers' productivity goes up, inflation either doesn't go up or rises at a slower rate than expected. That's why Heintz shouldn't be a cause for concern. "What we should worry about are wage raises for workers who stay on the same job and are not getting more productive," Moscarini says. —*Steve Matthews*

The bottom line The Atlanta Fed found that job switchers in 2016 earned 4.3 percent more than a year earlier. Those who stayed got 3 percent raises.

The Agra-Lucknow Expressway



Those are ominous signs for India's Prime Minister Narendra Modi. His Bharatiya Janata Party is battling in a crucial state election in Uttar Pradesh, where an estimated 140 million voters out of a population of 200 million are expected to cast ballots from Feb. 11 to March 8. It's one of five state elections now taking place, with results to be announced on March 11. In late January some opinion surveys had Samajwadi and its ally Congress winning; others had the BJP slightly ahead. Polls aren't allowed while voting is taking place.

In the 2014 general election, Modi swept impoverished Uttar Pradesh by promising development. But for farmers such as Singh, who voted the BJP into national office, it's not Modi's but Yadav's administration that's fulfilled its promises. Now a BJP election loss in India's most populous state may sap Modi's momentum ahead of the 2019 national vote—and, with possible seats in India's upper house also at stake, may endanger major economic reforms.

The state government's lavish compensation to farmers, as well as the expressway's completion in just 24 months, contrasts starkly with a behind-schedule road being built by Modi's government in Uttar Pradesh. "Everyone here is talking about

Akhilesh and his development," Singh says. "People are now comparing Modi to Akhilesh—their promises and what they have delivered."

About four hours southeast of Lucknow, just outside the city of Sultanpur, a federal government-built highway is starting to break down. Large chunks of the fresh asphalt on the two-lane road are missing. After the highway passes the village of Semari, it's jammed with buses and jeeps, and then it vanishes into a vast expanse of sand.

The road was started around the time Modi was elected in 2014 and was to be finished by late 2016. The Modi government paid Durbali Pandey, a farmer in Semari, 528,000 rupees for about an acre of land so it could pave over his fields. That's far less than what the Akhilesh government paid to farmers. "We feel cheated," Pandey says, standing with his bicycle on the dusty highway with other villagers who said they will vote for the Samajwadi Party, not Modi's BJP.

Modi's office wouldn't comment on infrastructure development in Uttar Pradesh, referring calls to officials of the Ministry for Road Transport and Highways, who didn't respond. Hansraj Vishwakarma, the BJP chief in the Uttar Pradesh district of Varanasi, says opposition claims that Modi

Public Works

India Likes Its Roads Built On Time

► **Modi is challenged at the polls in the country's most populous state**

► **"Everyone here is talking about Akhilesh and his development"**

A smooth, six-lane expressway has made Kailash Singh a rich man. The road runs from Agra, home of the Taj Mahal, to Lucknow, the capital of Uttar Pradesh, India's most populous and politically important state. On the way, it passes straight through Singh's farm.

To complete the 302-kilometer (188-mile) road quickly, Uttar Pradesh's government paid Singh 10 million rupees (\$150,000)—way above market price—for an acre of land and an old house. He's since built a two-story house with a marble floor and a veranda with ceiling fans. Similarly compensated, many of the 300 families in Singh's village of Naktaura have gone from huts to villas decorated with Hindu deities—and large stickers promoting the state's chief minister, Akhilesh Yadav, and his Samajwadi Party.

◀ hasn't pushed for development were a "complete lie." He lists roads, electrification, and efforts to clean the Ganges. "Lots of development work is visible," he says. "Let our government be formed. You will see how Uttar Pradesh will be changed in every aspect." —*Iain Marlow and Bibhudatta Pradhan*

The bottom line In India, winning Uttar Pradesh is crucial for a party if it's to exercise power at the national level. Modi is being challenged in the state.

Education

Brazil Has a School Problem

► It spends heavily on universities but neglects K-12

► "The students who come to us are poorly prepared"

Brazil's state universities enjoy a sterling reputation. But students who qualify for admission come largely from exclusive and expensive private schools. Pupils who attend public schools usually don't move very far up from their crumbling and often violent neighborhoods.

Former President Luiz Inácio "Lula" da Silva and his successor, Dilma Rousseff—who was impeached last year—attempted to solve the problem by plowing what the federal audit court estimates at 43.2 billion reais (\$14 billion) into a student loan program called Fies from 2009 to 2015. The loans supported students turned away from state universities who could use the funds to attend a network of for-profit colleges. Those institutions now educate about 6 million—

76 percent of all college students in Brazil.

The for-profit universities are dominated by **Kroton Educacional SA**, the world's largest education company, with about 1 million undergraduates. Kroton and its rivals have thrived by expanding their client base through distance-learning classes, where students at centers from the Amazon jungle to beach towns gather weekly to attend lectures.

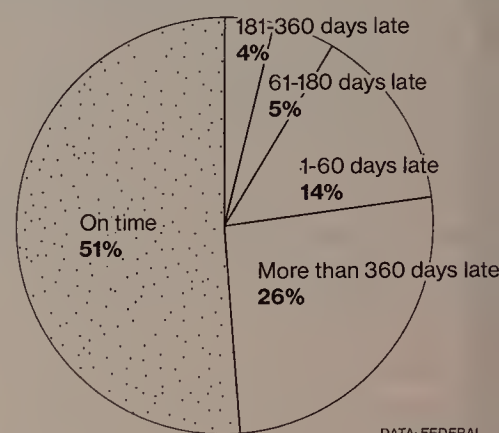
The gains in enrollment, four-fold over the past 20 years, have been cheered by ordinary Brazilians as a major advance for the middle class in Latin America's biggest economy. But the subsidies raised the government's higher education budget by 30 billion reais over six years. In the same period, kindergarten-to-high school spending rose just a third of that. "We've got our priorities all backwards," says José Mendonça Filho, who became education minister after Rousseff's impeachment last May. In 2015, Brazil spent 27 percent more as a share of gross domestic product on basic K-12 education than its peers in the Organization for Economic Cooperation and Development. Yet 30 percent of its workforce remains functionally illiterate, according to the nonprofit Instituto Paulo Montenegro. The average Brazilian worker is a quarter as productive as his U.S. counterpart. "From the moment the average child learns to read and write in Brazil, he starts piling up deficiencies," Mendonça Filho says.

At the same time, little is known about the quality of education received by students in for-profit colleges. There are no numbers on employment rates or the salaries of graduates. Loan default rates collected by the audit court paint a bleak picture. In December 2015, 49 percent of Fies students who were supposed to be paying back their loans were late; 26 percent were more than 360 days overdue.

Mendonça Filho has some fixes in the works: a system that places high school students in programs based on academic strength and a planned overhaul of Fies. Kroton, which was Brazil's best- or second-best-performing stock three years running through 2014, is down 25 percent from its November 2014 peak on concerns that the government is going to rein in its support.

Troubled Borrowers

Status of Fies student loans as of December 2015



Rodrigo Galindo, Kroton's chief executive officer, says a retrenchment of the loan program would be a major blow to Brazil's middle class. While he acknowledges that the academic performance of students at public universities ranks higher, he says Kroton is offering what to many is the only avenue for exiting poverty. "Is there a gap? Of course there is," he says. "The students who come to us are poorly prepared."

About 80 percent of Kroton's student body is made up of people educated in public schools, forcing the company to offer freshmen free catch-up courses that go over everything they should have been taught in high school. Anticipating a change in government support, Kroton has started offering its own student loan program and now relies on federal aid for 4 percent of its latest incoming class.

"The money Brazil invests in education isn't the problem—it's how we're spending the cash," says Ana Maria Diniz, daughter of billionaire Abilio Diniz and head of the family's philanthropic arm. At the grocery chain the family founded, she says it was a major struggle trying to find qualified people, even for basic jobs such as restocking shelves and counting out change for customers. "If we could fix the system, Brazil would take off," she says. "I'm just guessing, but I bet our GDP could grow by half." —*Fabiola Moura and Jessica Brice*

The bottom line For-profit universities in Brazil enroll most of the country's college students, who are often ill-prepared and need remedial work.

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Uber's Taxicab Confessions

► After arguing with a driver on video, Travis Kalanick admits he needs to “change” and “grow up”

► “I lost \$97,000 because of you. I’m bankrupt because of you”

When **Uber** Chief Executive Officer Travis Kalanick takes an Uber, he prefers a Black car, the high-end service his company introduced in 2010. On a particular night in early February—Super Bowl Sunday—Kalanick is perched in the middle seat, flanked by two female friends. Maroon 5’s *Don’t Wanna Know* plays, and Kalanick shim-mies. He clutches his smartphone as the trio make awkward conversation. The two women ask when his birthday is and marvel that he’s a Leo. One of his companions appears to say, somewhat inaudibly, that she’s heard Uber is having a hard year. Kalanick retorts, “I make sure every year is a hard year.” He continues, “That’s kind of how I roll. I make sure every year is a hard year. If

it’s easy, I’m not pushing hard enough.”

There’s no question that it’s been a hard year for Kalanick and Uber—or, really, a bad year compressed into an awful three months. And it keeps getting worse. That pleasant conversation between Kalanick and his friends in the back of an UberBlack? It devolved into an argument over Uber’s fares between the CEO and his driver, Fawzi Kamel, who then turned over a dashboard recording of the conversation to Bloomberg, which posted it online on Feb. 28. Kamel, 37, has been driving for Uber since 2011 and wants to draw attention to the plight of its drivers. (He joined a lawsuit filed as a class action that accused Uber of misclassifying workers as independent contractors;

the suit was settled in August, but a judge rejected the agreement.) The video shows Kalanick’s pugnacious personality and short temper, which may cause some investors to question whether he has the disposition to lead a \$69 billion company.

After the video posted, Kalanick sent an e-mail to his staff. “To say that I am ashamed is an extreme understatement. My job as your leader is to lead,” he said. “It’s clear this video is a reflection of me—and the criticism we’ve received is a stark reminder that I must fundamentally change as a leader and grow up.” The message included an apology to Kamel.

In December, Uber pulled its self-driving cars off the road in



San Francisco after the California Department of Motor Vehicles said they were operating illegally without an autonomous vehicle license. In January more than 200,000 people closed their accounts and #DeleteUber trended on Twitter after the company was accused of undermining a New York taxi union strike protesting Donald Trump's travel ban for people from seven Muslim-majority countries. On Feb. 2, Kalanick reluctantly left his spot on the president's business advisory council to appease liberal-leaning employees and users—not to mention its many immigrant drivers. On Feb. 19, a former software engineer at Uber wrote a blog post alleging that she'd been propositioned for sex by her manager and that when she'd taken the issue to human resources, an HR rep said the manager wouldn't be punished, in part, because he was a "high performer." On Feb. 23, **Alphabet Inc.**'s autonomous car company, Waymo, sued Uber and its self-driving car company, Otto, accusing an Uber employee of stealing trade secrets by downloading 14,000 files onto an external hard drive. On Feb. 27, Uber's head of engineering resigned after the company learned of a sexual harassment complaint he faced at Alphabet, his former employer. He denied the allegations.

The company has responded to the former engineer's allegations by hiring former U.S. Attorney General Eric Holder to investigate the claims. "What's described here is abhorrent & against everything we believe in," Kalanick tweeted. About Waymo's claims, an Uber spokeswoman says the company has "determined them to be a baseless attempt to slow down a competitor, and we look forward to vigorously defending against them in court."

Despite it all, Uber's business is growing week after week. It now operates in more than 400 cities around the world. The company has more than 11,000 corporate employees. It has many more drivers—millions of them, scattered all over the world, working as independent contractors, without the health-care and other benefits typically provided to full-time employees.

The gig has gotten harder for

longtime drivers. In 2012, UberBlack cost riders \$4.90 per mile or \$1.25 per minute in San Francisco, depending on the speed of the car, according to an old version of Uber's website. Today, Uber charges \$3.75 per mile and 65¢ per minute. UberBlack drivers are paid less than they once were and face more competition from other Uber services.

Kalanick has a reputation for being ferociously competitive and hard-charging. He's the guy who's bragged about having earned the second-highest rank on Nintendo's Wii tennis game. He's still dogged by once referring to Uber as "Boob-er," because it improved his dating prospects. Current and former employees say he can be empathetic when the mood strikes and tyrannical when it doesn't. He loves fighting over a good idea, which sometimes means admitting his isn't the best one. "Toe-stepping" is one of Uber's cultural values.

Kalanick is trying to be a better listener. He recently met with more than 100 female employees to address the morale crisis that followed the former software engineer's blog post. Standing in front of the crowd he sounded some of the right notes. "There are people in this room who have experienced things that are incredibly unjust," Kalanick said, according to a recording obtained by *BuzzFeed*. "I empathize with you, but I can never fully understand, and I get that. I want to root out the injustice."

Like Facebook Inc.'s Mark Zuckerberg, Kalanick is learning about empathy and communication. But Kalanick at 40, compared with Zuckerberg at 32, has to change later in life and is often reluctant to tread too far from his instincts. Even when he tries to empathize—which often means jumping into a dialectical argument of sorts—his temper can occasionally flare.

Such missteps were shrugged off when Uber was young. Now Kalanick's disposition may be a liability. Uber hasn't said just how much control of the board of directors he has. Companies such as Snap Inc. and Facebook gave their founders wide latitude to hire and fire board members, making it almost

impossible for founder CEOs to be fired. Board members are looking to Holder's inquiry to get to the bottom of the company's human resources controversy and any bigger corporate culture issues. In his apology after the video, Kalanick said, "This is the first time I've been willing to admit I need leadership help, and I intend to get it."

In Kamel's car, Kalanick is seemingly at ease as the car reaches its destination and his friends hop out.

"You have a good one," says the driver.

Kalanick says with an air of familiarity, "Good to see you man."

Kamel replies, "Good to see you, too."

Kalanick thinks the ride is over. But having the CEO in his car is an opportunity Kamel has been waiting for.

"I don't know if you remember me, but it's fine," Kamel says. The pair begin talking shop, and Kalanick explains that they're going to cut down on the number of Black cars, which will reduce competition and should be good for Kamel.

Then Kamel says what every driver has been dying to tell Kalanick: "You're raising the standards, and you're dropping the prices."

Kalanick: "We're not dropping the prices on Black."

Kamel: "But in general the whole price is—"

Kalanick: "We have to, we have competitors. Otherwise we'd go out of business."

Kamel: "Competitors? Man, you had the business model in your hands. You could have the prices you want, but you choose to buy everybody a ride."

Kalanick: "No, no, no. You misunderstand me. We started high-end. We didn't go low-end because we wanted to. We went low-end because we had to, because we'd be out of business."

Kamel: "What? Lyft? It's a piece of cake right there."

Kalanick: "It seems like a piece of cake, because I've beaten them. But if I didn't do the things I did, we would have been beaten, I promise."

The two bat that idea around, and Kamel brings the conversation back to his losses.

"It seems like a piece of cake, because I've beaten them. But if I didn't do the things I did, we would have been beaten, I promise."
—Uber's Kalanick

◀ Kamel: "But people are not trusting you anymore.... I lost \$97,000 because of you. I'm bankrupt because of you. Yes, yes, yes. You keep changing every day. You keep changing every day."

Kalanick: "Hold on a second, what have I changed about Black? What have I changed?"

Kamel: "You changed the whole business. You dropped the prices."

Kalanick: "On Black?"

Kamel: "Yes, you did."

Kalanick begins to lose his temper. "Bullshit," he says.

Kamel: "We started with \$20."

Kalanick: "Bullshit."

Kamel: "We started with \$20. How much is the mile now, \$2.75?"

Kalanick: "You know what?"

Kamel: "What?"

Kalanick: "Some people don't like to take responsibility for their own shit. They blame everything in their life on somebody else. Good luck!"

Kamel: "Good luck to you, but I know [you're not] going to go far."

The door slams. Kamel drives away. Later, the Uber driver app prompts him to rate Kalanick, as he does all his riders. Kamel gives him one star.

—Eric Newcomer

The bottom line An Uber driver records an argument with CEO Kalanick, who loses his temper toward the end of their conversation.

Pharmaceuticals

Drug Costs Too High? Fire the Middleman

► **Price scrutiny has put pressure on pharmacy benefit managers**

► **"Many areas of the PBM industry are just a black box"**

A decade ago, **Caterpillar Inc.** looked at its employee drug plan and sensed that money was evaporating. The bills for pills had increased inexorably, so the company started to rein in its pharmacy benefit manager, or PBM. The managers are middlemen with murky incentives behind their decisions about which drugs to cover, where they're sold, and for how much.

In a decade when the average American's drug spending has spiraled

higher, the figure has fallen at the company. By hiring its own doctors and pharmacists, among other changes, Caterpillar has saved tens of millions of dollars a year. "The model is as successful today as it's ever been," says Todd Bisping, a global benefits manager at the company.

Caterpillar's experiment raises tough questions about a market that President Donald Trump recently slammed for "astronomical" prices. Pharmacy benefit managers process prescriptions for insurers and negotiate with manufacturers on one end and pharmacies on the other. The three biggest—**Express Scripts Holding**, **OptumRx** (a unit of insurer UnitedHealth Group), and **CVS Health**—process about 70 percent of the nation's prescriptions, according to Pembroke Consulting. Drugmakers, who met with the president behind closed doors in January, have been trying to finger the managers as the culprits of the cost increases. "The drug-pricing system is completely broken," says Linda Cahn, who runs Pharmacy Benefit Consultants in Morristown, N.J. "For the first time, PBMs are in the crosshairs."

The Health Transformation Alliance, a year-old group of more than 30 companies including **IBM Corp.** and **American Express Co.**, has promised to bring down costs in part by reducing "redundancies and waste in the supply chain."

PBMs deny raising costs and say pharmaceutical companies seek to mask their own profiteering. "Drugmakers set prices, and we exist to bring those prices down," Tim Wentworth, Express Scripts' chief executive officer, said on a Feb. 15 earnings call. Larry Merlo, head of CVS, sounded a similar refrain six days earlier: "Any suggestion that PBMs are causing prices to rise is simply erroneous."

In the U.S., \$15 of every \$100 spent on brand-name drugs goes to middlemen, estimates Ravi Mehrotra, a partner at MTS Health Partners, a New York investment bank. The largest share, about \$8, goes to benefit managers. In other developed countries, only \$4 out of every \$100 goes to middlemen, he

says. PBMs popped up in the late 1960s as payment processors. They now draft medication menus and negotiate prices behind the scenes with drugstores, health plans, and manufacturers.

As their role expanded, so did ways to make money: Benefit managers keep about 10 percent of the rebates from manufacturers vying to get their medicines covered; they sometimes charge health-plan clients more for generics than they reimburse the pharmacies dispensing them; and they channel clients to their own specialty or mail-order pharmacies. PBMs say they vary terms to suit client needs. While the terms are agreed to in contracts, they aren't always well-understood by clients.

A few benefit managers, including OptumRx, are accused in lawsuits of "clawing back" the difference between a patient's copay and the actual lower price of a drug from pharmacists. OptumRx owner UnitedHealth Group said the suits are without merit. "Many areas of the PBM

industry are just a black box," says Greg Rucinski, president and founder of Tricast LLC, a Milwaukee company that performs audits for employers.

The industry has had some success. PBMs have forced down costs of hepatitis C medicine sharply over the past two years by pitting competing drugs against one another. For every dollar that managers keep, they save \$6 for employers and consumers, according to an analysis sponsored by the Pharmaceutical Care Management Association, their trade group.

Caterpillar's move away from benefit managers started when it suspected that as much as a quarter of its \$150 million drug spending was wasted. The company devised its own list of drugs to offer its U.S. health-plan members and negotiated deals with pharmacies. It promoted generics and discouraged use of expensive heartburn and cholesterol medicines. The changes have saved the company \$5 million to \$10 million per year on cholesterol-lowering statins alone, Bisping says. Drug spending at Caterpillar, which still uses OptumRx to process claims and obtain rebates, has dropped per patient

How PBMs can profit

Spread pricing

Charge clients more for some drugs than they pay the pharmacy

Rebate retention

Keep a portion of a drugmaker's rebate, around 10 percent, as compensation

Keep in house

Steer patients to their own specialty or mail-order pharmacies

Clawbacks

Take back the difference between a patient's flat copay and the actual price of a drug when the copay is higher

and per prescription since the company started the program.

Now, some companies are switching to smaller “transparent PBMs” that charge flat fees for processing claims without hidden markups. **American Casino & Entertainment Properties LLC**, which owns four Nevada gambling houses, says its costs plummeted 28 percent after it dropped its big benefit manager in 2012 in favor of **Navitus Health Solutions LLC**, according to its general counsel, Phyllis Gilland.

Several states have sought to hold managers to a fiduciary standard so that they’ll put their customers’ interests ahead of their own, an effort the industry has beaten back in court. Tyrone Squires, who runs **TransparentRx** in Las Vegas, promises clients in writing to act in their interests and refuses payments from drugmakers or anyone else. Squires says he consistently saves clients 15 percent. “It’s a myth that legacy behemoth PBMs can save more money than a boutique,” he says. —*Neil Weinberg and Robert Langreth*

The bottom line Caterpillar, which reined in its PBM seven years ago, has saved tens of millions of dollars on drug spending.





Alcohol

Changes On Tap for Japan’s Beer Tax

- ▶ **A unified tax rate is good news for craft brewers**
- ▶ **“I view the entire beer-tax regime in Japan as a colossal bad joke”**

In Japan, a nation of epicures, the local beers aren’t always palate pleasers. Connoisseurs blame the taxman. The Finance Ministry imposes higher taxes on drinks with greater malt content. So the biggest breweries, including **Asahi Group Holdings Ltd.** and **Kirin Holdings Co.**, sell knockoffs, called *happoshu* (meaning bubbly spirits), or third beer, that may use peas, corn, or soybeans to reduce the amount of flavorful malt. “A lot of time, energy, and money has been wasted coming up with some really bad drinks—and it’s because of the tax system,” says Tatsuo

Japan Taxes What’s in the Can

			
Beer	Happoshu	Third Beer	Craft Beer
Tax 77 yen (68¢) per can	Tax 47 yen per can	Tax 28 yen per can	Beer containing additives; categorized as beer or happoshu, depending on malt content and ingredients
Malt content 67 percent or greater	Malt content Less than 67 percent	Malt content None. Substitutes include corn and pea proteins	
Share 51 percent of beer-type beverages, including craft beer	Share 14 percent, including craft beer	Share 35 percent	Share 2 percent

DATA: ASAHI

Aoki, owner of the Tokyo bar Popeye.

Craft brewers, which account for about 2 percent of beer sales in Japan, say the tax incentives have given bigger companies an advantage and allowed the substitutes to dominate the market, because they cost a lot less. Meanwhile, some expensive-to-make special brews with exotic ingredients must be advertised as the cheap stuff because their recipes don’t meet official definitions of beer—which regulations define, in part, as having at least 67 percent malt content. “I view the entire beer-tax regime in Japan as a colossal bad joke,” says Bryan Baird, a co-founder of **Baird Brewing Co.**, one of 265 craft brewers in Japan.

The Finance Ministry, in an effort to boost the competitiveness of Japanese beers in the international market, will change the tax rates for beer and the substitutes starting in 2020, continuing through 2026. In 2018 it will expand the list of ingredients allowed inside the can. Leveling the taxes and removing the happoshu stigma could mean fast growth for the nation’s craft brewers.

Changing the code to encourage more craft brewing could also help revitalize regional economies, according to the ministry’s tax bureau, something Prime Minister Shinzo Abe promotes as a key part of his development program. Domestic shipments of all beer have declined for 12 straight years, according to the Brewers Association of Japan. Revenue is projected to continue falling through 2021, according to Tokyo-based market researcher Fuji Keizai Co.

The current tax regime is a relic of the 19th century, when beer was a luxury imbibed primarily by foreigners. It was seen as a way to raise money without putting a tax burden on Japanese consumers.

Japan’s five big brewers—**Asahi**, **Kirin**, **Suntory Beverage & Food**, **Sapporo Holdings**, and **Orion Breweries**—have long argued the taxes are too high and make beer too expensive for average drinkers. The tax on a can of beer equals 77 yen (68¢), which is 9 times greater than that in the U.S. and 19 times greater than Germany’s, according to a 2016 report by a lobby group representing the brewers. If the malt content is lowered enough, the tax could fall to 28 yen. “Too much attention has been given to winning market share through price wars, and we have left behind what is most important—the customer,” says Yoshinori Iozaki, Kirin’s chief executive officer.

Beer startups are also hindered by a regulation that prohibits malt beverages containing fruit extracts, spices, and other ingredients from being sold as real beer. As such, some craft beers have been lumped in with the cheaper, low-malt brews, lessening their appeal.

Executives at Japan’s largest craft beer maker, **Yo-Ho Brewing Co.**, are toasting the government’s changes. Yo-Ho makes a wheat beer with coriander and orange peel, accordingly labeled happoshu.

“Customers have been under the mistaken impression that just because the label says ‘happoshu,’ it doesn’t taste good,” says Yo-Ho CEO Naoyuki Ide. “We definitely see things going in a positive direction for craft beer.” —*Grace Huang, Gearoid Reidy, and Jason Clenfield, with Maiko Takahashi*

The bottom line Japan’s new tax laws may bring about a beer boom that could boost the production of craft brews.

Blame Automation, Not Immigration

A driverless truck rolls off with a Rotterdam dockworker's job

► Fear of “robots” feeds a nativist political movement in the Netherlands

► “I don’t think protectionism... will contribute to the economic or social welfare of the country”

From the vantage point of the windows in the towering offices of Rotterdam’s port authority, barges stream past silently below, beginning their journeys from this Dutch sea harbor to points across Europe, laden with anything from Chinese microwaves to iron ore from Brazil. As Europe’s biggest port, Rotterdam is a key hub in the global economy and one of the continent’s most diverse, cosmopolitan cities, with a large immigrant population. And yet this North Sea gateway to the world is also the birthplace of the anti-globalization, anti-immigrant, and anti-Muslim political movement that

could place first in the country’s elections on March 15.

The appeal of its leader, the peroxide-blond Geert Wilders, and his Freedom Party seems a paradox even in the age of President Donald Trump and Marine Le Pen, the nationalist leading the polls in France. For centuries the Netherlands has been a byword for liberalism, religious tolerance, and openness to trade. Yet Wilders took a lead in the polls, largely by tapping into deep fears among many low-skilled Dutch workers of losing their jobs in a world of rapid technological change. “Robotization is taking our

jobs,” says Niek Stam, leader of the FNV Havens labor union, which represents the stevedores loading and unloading cargo at Rotterdam’s port. “Dockers won’t vote for Wilders because they’re racist—they aren’t. They’ll vote for him because they’re angry.”

Rotterdam encapsulates the tension that’s helped foster the current political climate. That includes change brought by immigration but also the effect that globalization has had on those who learned their trade in the 20th century. There’s less need for burly men with basic education to do the heavy and inherently dangerous work of the



Rotterdam's immigrants have become an easy target, particularly the Muslims who make up an estimated 13 percent of the city's 600,000 residents. Among his top priorities, Wilders, 53, wants the Netherlands to harden its borders, drop the euro, and exit the European Union. He also wants to ban Muslim immigration, mosques, and the Koran, which he described as Islam's *Mein Kampf*. He recently called Dutch citizens of Moroccan descent "scum." Wilders lives under 24-hour police guard and on Feb. 24, just three weeks before the election, paused his already minimalist public campaigning after a member of his security detail was arrested for reportedly providing intel on him to Moroccan gangs.

Wilders has reason to be cautious. He's the political descendant of Pim Fortuyn, a provocative conservative who campaigned on an anti-immigrant, anti-Muslim platform before being assassinated in 2002. The gunman, a white animal-rights activist, said he killed Fortuyn to stop him from scapegoating Muslims. Fortuyn's populist agenda was eventually taken up by Wilders and his Freedom Party.

Port chief Castelein is puzzled by the support Wilders's populist message has garnered in a city whose success is so defined by its open borders and connection to the rest of the world. "I don't think protectionism of any kind will contribute to the economic or social welfare of the country," he says. Noting that Rotterdam draws an estimated 3.5 percent of its economic output, more than \$25 billion, from the port, Castelein says: "We need to supply 350 to 500 million Europeans, not 16 million Dutch people."

Last year, Stam, the labor union leader, led the port's first strike in 13 years to prevent any job losses as a result of the newly opened automated terminal. "People for open markets say this is the fourth or fifth industrial revolution and that the previous ones brought wealth," says Stam. "But robots don't buy cars. They don't shop. They don't contribute to pensions or the health-care system."

On top of that, he says, the boom years of globalization are now over; every automated process will cannibalize the job of a human. In the 1970s, 25,000 stevedores worked at the port. By the 1990s, there were fewer than 12,000. Now there are just 7,000, and Stam estimates new legislation going through the Dutch Parliament to close all coal-fired power plants in the Netherlands will cost 600 of those jobs.

Stam says none of this would be helped by what Wilders has to offer, one reason he says he won't vote for him. "Muslims are third-generation Dutch people. They aren't taking our jobs," says Stam, who blames automation and competition from lower-cost ports in Poland.

Rotterdam has been dependent on open borders since at least the 17th century, expanding on the backs of Dutch traders who sold goods from around the world to ever more Europeans. By 1962, Rotterdam was the world's largest port. It has since lost that distinction to ports in China, and it's unlikely ever to regain it. The port's own 2009 scenarios for business growth through 2030 have since been revised down 20 percent. None of those projections account for the possibility of Holland leaving the EU or a sudden bout of global protectionism.

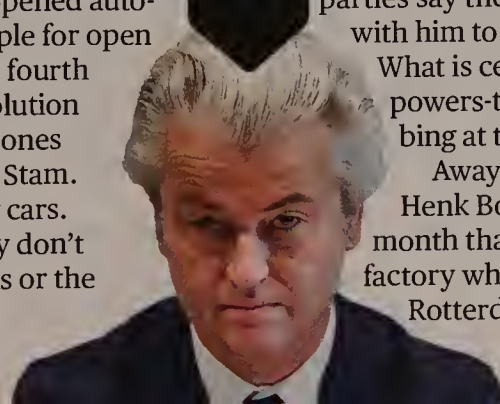
For Europeans concerned that a Wilders victory will propel radicals to power across the EU, the situation may be less scary than it seems. The fragmentation of Dutch politics means that, although leading in the polls, Wilders still attracts less than 20 percent of the vote. And the boost he received after Trump's victory has since disappeared, leaving him just ahead of the ruling conservatives. Even if he wins, it's unlikely Wilders will be part of a

ruling coalition because other large parties say they wouldn't work with him to form a government.

What is certain is that the powers-that-be face a drubbing at the ballot box.

Away from the port, Henk Boes discovered last month that the glass bottling factory where he's worked in a Rotterdam suburb for the

Wilders



stevedores. There's more demand for IT staff to maintain the digital revolution that's speeding the port bureaucracy—and to operate the robots.

New, automated terminals at the Port of Rotterdam began operation in 2015, with ships being unloaded remotely from control rooms and containers moving around the port on driverless trucks. Though the port employs about 90,000 people, the same as it did a decade ago, automation is changing the nature of those jobs, says Allard Castelein, the port's chief executive. "For containers, we used to have middle-aged men operating a crane," he says. "Now you'll find a control room with 22-year-old women with perfect eye-hand coordination doing it."

For those losing their jobs, it can be hard to know whom to blame.

◀ last 46 years will be shut by its U.S. owner, **Owens-Illinois Inc.** Boes sees the closure as a matter of corporate greed. He's choosing between Wilders and the relatively new 50+ Party, both of which support lowering the pension age and protecting jobs. "It will be the same as in America," says Boes. "I'll vote against the Establishment." —*Marc Champion and Anne van der Schoot*

The bottom line The cosmopolitan port city of Rotterdam is the birthplace of Europe's politically ascendant anti-immigrant movement.

Congress

Planned Parenthood Is a GOP Land Mine

▶ **The perils of tying a defunding provision to Obamacare's repeal**

▶ **"We're just walking into a gigantic political trap"**

Republicans have spent years trying to defund Planned Parenthood and repeal Obamacare. Now that they control the White House and Congress, they have the power to do both. But if they try to do them simultaneously, as some conservative House members are insisting, the move could end up backfiring, spoiling their effort to make Obamacare vanish and possibly even triggering a government shutdown this spring.

In the House, a group of anti-abortion

Quoted

"We must restart the engine of the American economy—making it easier for companies to do business in the United States and much harder for companies to leave."

President **Donald Trump** speaking to Congress on his plans to overhaul the U.S. tax code

Republicans is determined that any bill to repeal Obamacare must include provisions to cut off an estimated \$500 million in annual federal funds for Planned Parenthood. Although its services include abortion, the women's reproductive health-care provider has long been banned from using federal funds for the procedure. Still, with a Republican in the White House, anti-abortion lawmakers and activists are seizing on their chance to act swiftly. In the words of Representative Trent Franks of Arizona, if a repeal bill "does not have defunding of Planned Parenthood in it, I think the motivation for conservatives changes so dramatically that it imperils the whole concept."

Franks is a member of the House Freedom Caucus, a bloc of lawmakers that grew out of the Tea Party and represents the hard-right flank of the GOP majority in the House. With about 40 members, the caucus is big enough to ensure that any repeal bill that it doesn't support won't have the votes to make it out of the House. The trouble is, any bill that includes a Planned Parenthood provision may not be able to get through the Senate, even though the GOP is using a mechanism to avoid the 60-vote threshold.

In the minds of some Republicans, all this does is add unnecessary complications to what is already a fraught effort to repeal and replace Obamacare, one that could end up derailing other agenda items such as tax reform. "We're just walking into a gigantic political trap if we go down this path of sticking Planned Parenthood in the

health insurance bill," Representative John Faso of New York said in a private Republican meeting at a retreat in Philadelphia in late January, according to leaked audio. "If you want to do it somewhere else, I have no problem, but I think we are creating a political minefield for ourselves—House and Senate."

For a repeal bill to pass in the House, Republicans can afford to lose fewer than two dozen votes within their party, assuming all Democrats stick together in opposition. In the Senate, the GOP can spare only two defectors, and at least two have been skittish about defunding Planned Parenthood. Senator Susan Collins of Maine, who voted against repealing Obamacare in the last Congress, partly over a provision defunding the group, said in January she was "not happy" when House Speaker Paul Ryan said a repeal bill would cut off funds for Planned Parenthood. Republican Senator Lisa Murkowski of Alaska signaled unease in remarks to her state legislature on Feb. 22, saying she does "not believe that Planned Parenthood has any place in our deliberations."

Asked if there's concern that attaching a defunding of the group would imperil the health-care plans, Ryan spokesman Doug Andres noted that Obamacare repeal legislation with such a provision passed in the last Congress before Obama vetoed it. "This is where you got to have strong knees, if it comes back from the Senate and they're funding Planned Parenthood," says Representative Dennis Ross of Florida, a senior deputy majority whip. Ross says Republicans would have to decide if "the greater good" would still be served by an Obamacare repeal bill that leaves Planned Parenthood funding intact.

With the repeal effort increasingly likely to slip into April, the fight could also spill over into the spending battle to keep the government open after current funding expires on April 28. With Republicans insisting that the next spending measure not fund Planned Parenthood, Democrats have the votes to block their bill and set up a shutdown showdown. In some ways, this is familiar ground for the GOP, which forced one in 2013. In 2011 and 2015, Republicans tried to shut down the government over Planned Parenthood.

Still, members of the Freedom Caucus aren't backing down. "Planned



① Makani Power's energy kite has an 85-foot wingspan.
② Turbines generate a total of 600kW.
③ The tether connects the kite to the base station and conducts electricity.

Heritage Foundation called for axing ARPA-E. "It's unclear to me what purpose ARPA-E actually plays," says Jack Spencer, a Heritage vice president and former member of Trump's Energy Department transition team. "The Valley of Death is where bad ideas go to die."

At ARPA-E's annual conference outside Washington on Feb. 28, a pall of uncertainty hung over the exhibition hall, where dozens of people set up booths displaying technologies that had received ARPA-E funding. "There's a lot of trepidation," said

Brian Baird, a former Democratic representative from Washington, in an interview at the conference. "The anti-science and slash-the-budget mentality is going to have very negative consequences."

Killing ARPA-E may not be so easy. Among its supporters on Capitol Hill are Republican Senators Lisa Murkowski of Alaska, chairman of the Senate Energy and Natural Resources Committee, and

Lamar Alexander of Tennessee, chairman of the energy panel of the Appropriations Committee. Business heavyweights such as Bill Gates and Tom Fanning, president of power utility Southern Co.,

have argued ARPA-E financing should increase to \$1 billion a year, triple its current level.

The fate of the fund may rest with Rick Perry, Trump's pick to head the Energy Department. At his confirmation hearing on Jan. 19, Perry, a three-term Texas governor, stopped short of saying he'd kill ARPA-E, vowing instead to work with Congress to ensure "an appropriate funding level." —Ari Natter

The bottom line ARPA-E, a high-risk energy fund that's given \$1.5 billion in grants, faces an uncertain future in Trump's era of budget cuts.

B Edited by Matthew Philips
Bloomberg.com

Parenthood defunding language is going to be in the Obamacare repeal," says Representative Jim Jordan of Ohio. "It's critically important that we do it." —Sahil Kapur, Arit John, and Billy House

The bottom line A group of House Republicans insists that any repeal of Obamacare must include measures to defund Planned Parenthood.

Cutbacks

A Cloud Hangs Over a Clean-Energy Fund

► Obama's energy research fund could face Trump's budget wrath

► "If ARPA-E goes away, high-risk energy research will die"

In 2009 a small company called **Makani Power** was in trouble. It had developed a **high-altitude wind turbine**, designed to soar 1,000 feet in the air, where consistently high winds make it cheaper to generate power. After several years the company faced a classic startup problem: It still wasn't close to producing revenue and had spent almost all its initial seed money. To cross the so-called Valley of Death, Makani would need fresh capital, but there were no offers on the table.

Then a \$4 million grant appeared from an unexpected source: the federal government. The money came

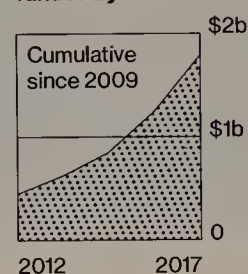
from what was then a new office in the U.S. Department of Energy called the Advanced Research Projects Agency-Energy, or ARPA-E. Modeled after the military's research arm, Darpa, which is credited with inventing the internet and GPS, ARPA-E's stated goal is to help inventors translate science into breakthrough technologies.

The program, authorized under President George W. Bush, wasn't funded until 2009, when it got \$400 million through Barack Obama's Recovery Act. Since then, ARPA-E has doled out about \$1.5 billion in grants to 580 projects, giving a chance of survival to hundreds of energy startups, including Makani Power, which was bought by Google in 2013. "ARPA-E is the only reason the project continued to exist," says Saul Griffith, Makani's co-founder. "If ARPA-E goes away, high-risk energy research will die in this country."

Now, ARPA-E may have to fight for its own survival. With President Donald Trump promising to slash billions of dollars in government spending, federal agencies are bracing for big cuts. ARPA-E could be at the top of the hit list. It was singled out in a memo Trump's transition team sent in December to the Energy Department asking for a list of projects it funded. Trump's budget chief, former Congressman Mick Mulvaney, tried to slash ARPA-E's budget by 24 percent in 2012.

Budget blueprints issued by the Republican Study Committee, a group of conservative lawmakers, and the

Private investment in projects initially funded by ARPA-E





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March 6 — March 12, 2017

Snap HQ



35

Fun Filters Don't Make Good Neighbors

► Snap's expansion in Los Angeles is upsetting many residents

► "They don't associate with you if you don't have tech vocabulary"

In November, Snapchat parent **Snap Inc.** paid to have a tree near its headquarters in Los Angeles's beach-front Venice neighborhood sealed up with cement. There was a beehive in there, and neighbor Bryan Brogers, whose building is shaded by the tree, broke through the cement to get a look at the damage. "The honeycomb is all black now and no bees," he wrote on the community forum Nextdoor, generating 249 mostly outraged replies. Signs soon went up outside: "SNAPCHAT: BEE KILLER" and "ALL BEE LIVES MATTER."

Few minds were changed when Snap told local news site Yo! Venice! that it hired a biologist to relocate the colony in an ecologically sensitive

way. This wasn't just about the bees. The incident "is a perfect metaphor for what Snapchat is doing to Venice," one person posted on Nextdoor. "More overreach from Snapchat," said another, tired of being eyed by Snap security guards on city sidewalks.

Snap chose Venice for its headquarters because founders Evan Spiegel and Bobby Murphy were drawn to the eclectic community, with its sand sculptors, boardwalk skateboarders, and Rastafarians. "Our dream had always been to have an office on the beach," Spiegel said during Snap's video presentation to investors for its initial public offering, which was filmed in a small blue house on the boardwalk.

The company moved its first eight employees into that house, and "we thought it was pretty big for what we needed at the time," Murphy added. "In just a few months we filled this place to the brim with 20, 30 people."

Now there are more than 1,000 employees, and Venice is struggling to accommodate them. The neighborhood is largely a warren of footpaths and single-family homes, woven through with man-made canals, where buildings rarely exceed four stories. There's no space for a corporate campus. As a result, Snap has been leasing and buying little buildings all over Venice and on the most touristy



Snap was drawn to Venice's eclectic community of skateboarders and scrap-wood painters

36



Segovia

◀ slices of beach, creating what the *Hollywood Reporter* called a corporate “archipelago.” Nowadays, Venetians routinely encounter clusters of Snap engineers with security badges clipped to their belt loops, carrying paid-for lunches into private cafeterias in unmarked buildings with the shades drawn, stirring mystery and paranoia about what’s going on inside.

As Snap prepares to go public, its IPO planned for March 2, some residents fear its newly wealthy

employees will swamp Venice the way other tech companies have dominated the San Francisco Bay area. The resistance is nascent and disorganized, but residents are making their opposition known, placing signs outside buildings and showing up at zoning meetings to protest Snap’s expansion. In a March 7 primary, Robin Rudisill is seeking to unseat Mike Bonin, an incumbent L.A. city councilor and Snap supporter, by arguing that commercial development threatens to destroy Venice’s character. Rudisill compares Snap’s arrival to “someone coming into a natural preserve of birds or scenic flora and taking it over.” Citing the standard pre-IPO quiet period, the company declined to comment for this story.

Jason Moore, a Venice resident for 20 years, was Paris Hilton’s agent during her reality-show days and now represents pro video gamers. Moore works and lives one block from the beach and says Snap seems to be gobbling up the limited commercial and residential real estate and parking. As Snap expands, he says, it’s replacing the artisans and outcasts who made Venice a top tourist destination and a unique home.

Moore belongs to a Slack group called Venice Beach Dogs that keeps a running spreadsheet of properties its members believe Snap owns or leases. Moore says the research could lead to more transparency and prevent Snap from taking over Venice.

Snap isn’t the main driver of Venice’s

gentrification, which owes more to soaring rents in adjacent Santa Monica. Funky vibes notwithstanding, the median value of a Venice home is \$1.6 million, according to Zillow Group Inc.—up 6 percent in the past year. But walking around Venice with Moore, I have a tough time finding anyone who will say something nice about Snap or its employees.

Their expansion methods are “sneaky,” says actor Andrew Keegan, who runs a spiritual center. They’re antisocial, says Reed Segovia, who sells scrap-wood paintings in front of the blue boardwalk house.

Mark Ryavec, another primary candidate for L.A. City Council, is a Snap supporter. He says the neighborhood is benefiting from Snap’s presence and that even more money will flow into local businesses and real estate after the IPO. Some local nonprofits are also pro-Snap. The company has given back to the Venice community in many ways: funding a computer science class at a local school, running a backpack drive for poor students, and repainting murals on another school’s handball courts. “I work with many corporate partners in our schools, and I don’t think I’ve had nearly that amount of face time and volunteer activity that Snap has put forward,” says Kristen Paglia, who runs P.S. Arts, which supports arts education.

Cesario Montañó, a local fixture and unofficial mayor of Venice, who goes by the nickname Block, lived in

Digits

12k

The number of patents filed with China's intellectual-property office last year by local smartphone makers **Huawei, Oppo Electronics, and Xiaomi**, about a third of the total

At this year's Mobile World Congress trade show in Barcelona, the Chinese companies showed off features including quick charging, lowlight photography, and facial recognition.

the neighborhood back when it was plagued by drugs and gang violence. On the boardwalk in front of some Snap offices, Montañó spots a friend who he says just got a community relations job at the company, and calls her over. She crosses the street toward him, then apologizes and excuses herself; she can't talk to journalists without permission.

It isn't unusual behavior from a tech employee, but it bolsters Montañó's thesis: Snap employees are trained to keep to themselves. "They don't associate with you if you don't have tech vocabulary," he says. "They're like, 'You're a local.' They don't have anything to say to me."

It's lunchtime. Jim Robb, another longtime Venetian, watches Snap employees carry poke bowls into their unmarked offices. "Snap just needs to throw a big party," says Robb, who owns a tequila company.

"Yeah," Montañó says. "But after the party's over, what do we have in common?" —*Sarah Frier, with Aki Ito and Shelly Hagan*

The bottom line Many residents of Venice fear that Snap will destroy the eclectic nature of their Los Angeles neighborhood.

Hardware

The \$200 All-Seeing Line Judge

► A French inventor built a cheaper way to call tennis matches

► "This would not have been possible five years ago"

Visit just about any tennis club on a Saturday, and you're likely to witness otherwise sensible adults losing their minds over line calls. Players suffer complete meltdowns as they hurl insults. Parents morph into brooding teenagers. Friends become enemies. Postmatch beers can undo some of the damage, but the shame and resentment linger for days.

More civilized times may lie ahead. French inventor Grégoire Gentil has designed a \$200 GoPro-size device that can be fastened to any net post and detect whether balls are in or out with

surprising accuracy. It's called, reasonably enough, the In/Out. "I was born in Paris and raised on clay," Gentil says. On clay, the ball leaves a mark, and he recalls many arguments over a blemish on the court. "It was the starting point of this, I would say."

Gentil, 44, now lives in Palo Alto and built the In/Out in his living room lab. The device monitors both sides of a tennis court using a pair of cameras similar to those found in smartphones. After attaching the In/Out to the net with a plastic strap, a player pushes a button on its screen, and it scans the court to find the lines using open-source artificial intelligence software. AI also helps the device track the ball's flight, pace, and spin. "This would not have been possible five years ago," Gentil says.

In a test at Stanford, Gentil and I played for an hour, and the In/Out beeped whenever one of his shots sailed long or wide. (I don't remember missing any.) On close calls, we rushed over to watch a video replay on the In/Out screen. At hour's end, Gentil whipped out a tablet and connected to the In/Out app, which showed where all our shots had landed and provided some other stats.

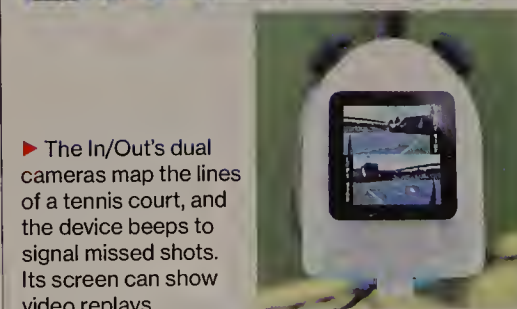
Although equipment like the In/Out has been around for years, Gentil's is the only one that costs about as little as a decent racket. Top tournaments, including the Grand Slams, use Hawk-Eye, a Sony Corp.-owned system of superaccurate cameras that customers say costs \$60,000 or more to set up on each court. Given the price, it's typically reserved for show courts. Sony didn't respond to requests for comment.

PlaySight Interactive Ltd., a

startup in Israel, makes a six-camera system that's less accurate than Hawk-Eye but costs a mere \$10,000 per court, plus a monthly fee to collect data that can be reviewed online or in an app. PlaySight's setup also includes a large screen that lets players see line calls and ball speed without interrupting the game. The company has sold its gear mostly to tennis clubs and universities.

Chris Edwards heads the product testing work done by retailer **Tennis Warehouse** and has tried all three tracking systems. "The In/Out doesn't bring the same depth of insight as PlaySight," he says. "But as far as a portable, cheap device goes, the In/Out has the potential to be the best by far. I haven't seen anything else like this."

Over the past decade, Gentil has made a dozen products. He sold a software company to Cisco Systems Inc., designed an augmented-reality



► The In/Out's dual cameras map the lines of a tennis court, and the device beeps to signal missed shots. Its screen can show video replays.

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Technology

◀ motorcycle helmet, and built a hand-size drone that can follow a person around. He spent two years developing the In/Out, tuning the software, even 3D-printing a plastic tennis ball-shaped case for it. It's been a tumultuous process, Gentil says. "You get an algorithm working on the tennis court one day and think you will sell hundreds of thousands of units, and the day after, nothing is working."

Gentil acknowledges his machine's limits. The In/Out has a 20-millimeter margin of error, compared with about 3mm for the Hawk-Eye, and can get confused during doubles matches if the extra players block its line of sight. Gentil says he hopes to improve the device's accuracy and recommends that two In/Outs be used for doubles. As for the possibility that Sony or PlaySight might sue him over the concept of his invention, he's filed some patents himself, he says. "If Hawk-Eye is coming after me tomorrow morning, they are going against innovation and against the tennis community. I think I might have the tennis community with me."

—Ashlee Vance

The bottom line Gentil's \$200 line-calling AI isn't as accurate as rival products, but unlike them, it's affordable enough for mass adoption.

Social Media

How Much Is an Instagram Story Worth?

► **To diversify, a travel marketing agency deploys a video tool**

► **"The traditional hotel photo shoot is a thing of the past"**

Jeremy and Tom Jauncey were among the first to turn being good at **Instagram** into a travel advertising and marketing business. Jeremy launched the travel-themed Instagram page Beautiful Destinations in 2012 and was soon joined by his brother. Within a year, the account had 1 million followers. By last August it had grown to almost 8 million. The brothers have built a portfolio of customers in the travel industry, mostly hotel chains and tourism bureaus, who pay to be touted to Beautiful Destinations'



enormous number of followers.

Even with that success, Beautiful Destinations had to diversify to grow. In August 2016, Instagram introduced Stories—its version of Snapchat. The feature incorporates short videos and images that disappear 24 hours after posting. Stories allows for a mix of posts: video clips as well as shots of a daylong excursion along Amsterdam's canals, for instance, rather than a single still. Since January, Stories have linked to client websites, a marketing tool regular Instagram posts don't offer.

The brothers saw an opportunity with Stories to sell clients such as **Hilton Worldwide Holdings Inc.** and **Marriott International Inc.** on new services to increase engagement on their own accounts. "We have a vision of the start, the middle, and the end before a Story goes live," Jeremy Jauncey says of the way Beautiful Destinations would produce a client post from high-resolution images and video. "That you can share an image that makes someone want to go to @hiltonmoorea"—the handle for a client, the Hilton Hotels & Resorts complex in French Polynesia—"and then easily take them straight to a booking page, that's closing the gap between social media interactions and actual transactions," he says. That's one reason the Shangri-La Le Touessrok Resort & Spa in Mauritius hired the company. The hotel wanted to better exploit Instagram. "Their photos and videos can dramatically affect our feeds," says Kishan Chandnani, Shangri-La's director of brand marketing.

In the fall, Beautiful Destinations posted an aerial shoot of the Empire State Building for the New York tourism board that rang up 3 million

Innovation

Makerarm

"If an inventor has a great idea and wants to test it out... Makerarm would allow them to do rapid prototyping at a very, very low cost."

Form and function

Makerarm's robotic fabrication system combines the functions of more than a dozen manufacturing machines—3D printing, milling, laser engraving, soldering, vinyl cutting, circuit board assembly—and fits on a desktop.

Innovator Zaib Husain

Age 39

Chief executive officer and co-founder of Austin startup Makerarm, which has 12 full-time workers



1.

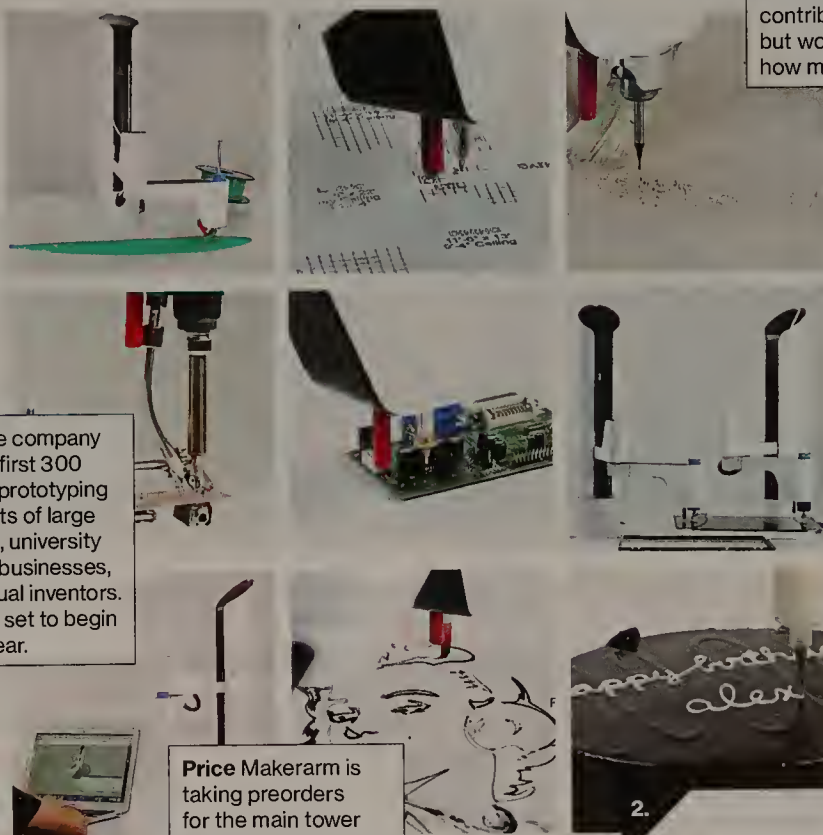
Setup

Makerarm's 29-inch-high, 20-pound preassembled main tower connects to PCs or mobile devices via Wi-Fi. Users create an account on the company's website.

Origin

Husain, a financial analyst and consultant, began designing Makerarm in 2013 with her startup-founder husband, partly in an effort to declutter their machinery-filled garage.

Funding Makerarm has raised more than \$435,000 on Kickstarter. The founders have also contributed money but wouldn't say how much.



Market The company presold its first 300 devices to prototyping departments of large companies, university labs, small businesses, and individual inventors. Shipping is set to begin later this year.

Price Makerarm is taking preorders for the main tower and three basic tool heads on its website for \$1,499. The tower with all 19 heads and add-ons costs \$4,847.

2.

Use Click one of the 19 task-specific tool heads into the tower, and the website will spit out step-by-step instructions.

Next Steps

The global market for 3D printing alone rose an estimated 29 percent, to \$6.7 billion, in 2016, though Makerarm doesn't quite have the industrial capabilities to compete for most of that business, says Terry Wohlers, president of researcher Wohlers Associates Inc. Husain says she's working on a mobile instructions app and more accessories, including a liquid-dripping pipette attachment. —Olga Kharif

likes and shares for the client's @iloveny handle in a single day. Beautiful Destinations has been garnering 30 million weekly views since Stories was unveiled; individual story posts have been averaging 5 million views. Before that, videos were a smaller part of the business.

Clients are drawn to the brothers' ability to cultivate brand awareness. Marketing costs are lower, too, compared with those of traditional television and print advertising. "The traditional hotel photo shoot is a thing of the past," says Hoyt Harper II, a former senior vice president for Starwood Hotels & Resorts' Luxury Collection. "Sending professional photographers to destinations is very expensive."

Plus, the reach of an image posted—to millions or even thousands of people—is something that isn't financially feasible with traditional marketing methods, says Jason Clampet, the editor-in-chief of *Skift*, a travel industry trade publication. "Social has given power to new brands like Beautiful Destinations that understood the power of sharing early on," he says. "They're focused on speed, on user-generated content, and on getting that emotional 'I want to go there' response. They're doing something well that traditional agencies can't deliver that's not just access to their followers."

Beautiful Destinations says clients have paid for annual contracts anywhere from \$50,000 for photo projects to \$1 million for bigger video-based campaigns.

The brothers are working with clients to figure out who exactly among their followers is doing the liking. They've hired a team of data scientists to build an analytics program, set to begin by yearend, that will break down the interactions on an image by demographic. "Creating content alone isn't a massive business," Jauncey says. "Clients want to see that there's a meaningful return on investment against social media communication, and that's what we're placing our bets on." —Nikki Ekstein

The bottom line Beautiful Destinations has been averaging 5 million views per Story since Instagram rolled out the Snapchat-like feature in August.

March 6 — March 12, 2017

If Not Dodd-Frank, Then...



► **Republicans' big idea to keep banks safe is too soft for Democrats and too strict for banks**

► **"The U.S. banking system does not need even more capital"**

The Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 looked like a goner when President Donald Trump was elected in November. During the campaign, Trump repeatedly blasted the law as a loan-killing, anti-job disaster. His party is filled with lawmakers who are even more opposed to it than he is. "On behalf of all hardworking, struggling Americans, I will not rest, and the House Financial Services Committee will not rest" until Dodd-Frank is repealed, committee Chairman Jeb Hensarling of Texas vowed last May.

Now, though, the drive to wipe out or scale back Dodd-Frank has lost

momentum. Trump issued an executive order on Feb. 3 for Treasury Secretary Steven Mnuchin to review the law, but the president made no mention of it in his priority-setting speech to Congress on Feb. 28. As with the Republican vow to repeal Obamacare, the sticking point may be finding a replacement for the law on the books.

"We need to regulate more simply, cut back on unintended consequences, and see if we can recalibrate this," says Douglas Elliott, a partner at management consulting firm Oliver Wyman. "That happens to be an extremely hard thing to do."

Hensarling does already have a bill

in the House, the Financial Choice Act, that's being given long odds. "We think the chances that the bill becomes law are less than 20 percent—maybe as low as 10 percent," Brian Gardner, Washington analyst at the investment bank Keefe, Bruyette & Woods, wrote to clients on Feb. 16. Even so, the bill offers a glimpse into Republicans' thinking on how to shape financial regulation.

The Democrats who pushed through Dodd-Frank sought to regulate multiple points in the financial system, because there are lots of places it can fail, from mortgage underwriting to derivatives trading.

Republicans prefer to harness market forces to keep companies in line. Where there must be rules, they like them to be simple and broad.

The Hensarling bill's main innovation is to give banks an offramp from some of Dodd-Frank's regulations. But to use it, a bank would have to maintain a leverage ratio of 10 percent or more. That's a measure of capital, or how much a bank's assets are worth compared with its liabilities, which include customers' deposits and debt owed to bondholders. Roughly, a ratio of 10 percent means that for every \$100 of a bank's assets, it owes only \$90. This gives the bank a safety cushion if assets decline in value, much like having equity in a home. Today only some small banks have a cushion that thick. Banks argue that higher capital standards force them to make fewer loans, but their lending as a share of gross domestic product has rebounded—although not to its 2006-07 bubble high—even with a big increase in capital.

Hensarling makes the case that the market can provide discipline: Shareholders have a strong incentive to make sure their bank behaves responsibly, because they're the first to get wiped out if it fails. When a bank is liquidated, the assets are sold for whatever the market will bear. Shareholders get zero unless there's money left after paying off depositors, lenders, and other creditors.

Unfortunately for Hensarling, his bill is being attacked from all sides. Bankers say the leverage ratio he advocates is unreasonably high. "The U.S. banking system does not need even more capital," Jeremy Newell, general counsel of the Clearing House Association, a trade group of the largest commercial banks, testified to Hensarling's committee in July.

Congressional Democrats, meanwhile, are wary of relying too much on just the safety cushion. Dodd-Frank mandates especially close supervision of the big banks whose failure would be the most destructive. Dismantling those layers of safeguards would risk a repeat of the financial crisis, argues Maxine Waters of California, the top

Democrat on Hensarling's committee. The Senate, where 60 votes would be required to stop a Democratic filibuster, is the biggest obstacle.

Even advocates of higher capital standards aren't fully behind Hensarling's bill. Anat Admati, a Stanford finance professor who's argued that banks need far bigger cushions, says she agrees with Hensarling that some regulations should be rolled back but worries that banks might find ways around leverage ratios by playing accounting games. "If you're going to put all your eggs in one 10 percent magic number, that number had better be meaningful," she says.

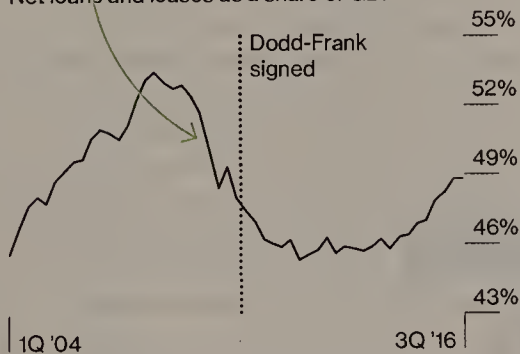
With Obamacare, taxes, and the budget consuming all the oxygen in Washington, Congress may not get around to Dodd-Frank until 2018 or beyond. Even then the changes could be limited, such as regulatory relief for smaller banks that don't pose systemic risks, says KBW's Gardner. Lately, the big banks are putting their lobbying energy into something more subtle: getting the Federal Reserve to ease up on its comprehensive capital analysis and review of big banks, a process known as CCAR.

"CCAR rules have been ratcheted unreasonably and progressively tighter," Greg Baer, president of the Clearing House Association, wrote in an e-mail. A more industry-friendly CCAR process at the Fed could effectively allow banks to pay out bigger dividends and maintain less capital, amping up their potential return on equity but also their

Bank lending fell sharply after the financial crisis

Lending Is Coming Back

Net loans and leases as a share of GDP



DATA: FEDERAL RESERVE, FEDERAL DEPOSIT INSURANCE CORP.

risk. Trump has some influence over that process, because he can fill three seats on the seven-member Board of Governors of the Federal Reserve System. When it comes to bank regulation, it's not only the laws you write that matter, but the zeal of the watchdogs. —Peter Coy

The bottom line Dismantling Dodd-Frank may have to wait. In the meantime, Trump can influence who's in charge of regulation.

Sovereign Wealth

Help Wanted in Saudi Arabia: Savvy Investors

► The kingdom aims to become a financial powerhouse

► "Reserves are dwindling, so they better make a decent return"

Yasir Alrumayyan has gotten the ear of some of the world's most successful investors. In closed-door meetings with **Blackstone Group LP** co-founder Stephen Schwarzman, **Carlyle Group LP**'s David Rubenstein, and others, the former investment banker in charge of building up Saudi Arabia's Public Investment Fund (PIF) has been making a pitch: Help us build our investing expertise, and you can run money for us. A lot of it.

The PIF has become part of Deputy Crown Prince Mohammed bin Salman's plan to wean Saudi Arabia off its reliance on oil and make it a financial powerhouse. Already it's committed \$45 billion to a new technology fund. It's a high-stakes gamble for the 31-year-old prince.

If the PIF's team makes a misstep, the prince's critics may question why he's plowing revenue from oil into companies abroad rather than spending it at home. "Any failure of the new sovereign wealth fund would be used to return to the old privileges and structures," says Jean-Francois Seznec, a political scientist and non-resident senior fellow at the Global

The Biggest, or Just Really Big?

Market value

Predicted valuation of Aramco

By Saudi Arabia

\$2t

By consultant* \$400b

World's largest public companies**

Apple \$719b

Google \$518b

Microsoft \$497b

Berkshire Hathaway \$418b

Amazon.com \$408b

Facebook \$393b

Exxon Mobil \$336b

Bigger than the combined value of the world's three largest companies

◀ Energy Center of the Atlantic Council. Prince Mohammed's rivals could use it "to build a bigger coalition to have him sidelined."

The prince was given control of economic policy and the massive **Saudi Arabian Oil Co.** by his father, King Salman, in 2015. He plans to sell up to 5 percent of the state oil monopoly—better known as Aramco—in an initial public offering in 2018. Ownership of Aramco will be transferred to the PIF, as will the proceeds from the IPO.

Aramco may be worth more than \$2 trillion in total, Prince Mohammed said last year, which would make the Saudi PIF the world's biggest sovereign fund when it takes ownership of the company. Of course, most of the fund's wealth would be tied up in Aramco. And the actual value of the company is hotly debated. An analysis by Wood Mackenzie Ltd. has put the valuation at \$400 billion, according to clients who attended a private meeting with the energy consulting group.

Even with a lower Aramco valuation, the Saudi wealth fund will be big. It already has some \$160 billion in assets, and the kingdom has announced a 100 billion-riyal (\$27 billion) transfer from official reserves. By 2020 the PIF plans to use half the assets not tied up in Saudi Aramco to invest abroad, up from 5 percent currently.

Since the plan was announced last year, the fund has funneled about \$50 billion of the kingdom's reserves into investments abroad, almost all of it into technology. That includes a \$3.5 billion stake in **Uber Technologies Inc.**, an agreement to form a \$1 billion

e-commerce company, and a \$45 billion commitment to a global technology fund formed by Japan's **SoftBank Group Corp.** That's a lot to commit

to three deals

in one indus-

try, says Rachel Pether, an adviser at the Sovereign Wealth Fund Institute. "There's a risk that PIF are chasing the bright lights, and they need to pay attention to valuations," she says. An official for the fund declined to comment. The PIF plans to build a portfolio diversified across industries, geography, and asset classes, according to a person familiar with the fund's thinking.

Still, the deals highlight the difficulties of putting large amounts of money to work quickly. "The PIF is going full speed into asset classes that some other mature funds have stayed away from," says Sven Behrendt, managing director of political risk consultant GeoEconomica GmbH. "Saudi government reserves are dwindling, so they better make a decent return, and fast. I see some chance that in a few years the wisdom of the PIF's initial investment approach will be questioned."

Alrumayyan, who was tapped by the prince in 2015, has more than doubled the number of employees in the past year, to about 130. By comparison, Abu Dhabi Investment Authority, or ADIA, employs 1,700 people to manage its \$792 billion in sovereign wealth, according to its latest annual report.

Other government funds have stumbled with some of their international investments. China Investment Corp. in 2014 vowed to improve how it manages its overseas portfolio after state auditors found dereliction of duty by managers and inadequate due diligence in 12 investments made from 2008 to 2013, leading to losses. ADIA in 2007 bought a 4.9 percent stake in **Citigroup Inc.**, just in time to get hit by the financial crisis.

Saudi Arabia until recently kept a low profile in overseas investments. That's one reason Alrumayyan earlier this year reached out to the investment executives. The preliminary discussions included whether the private equity firms could oversee some of the PIF's investments for a fee or take minority stakes in individual companies in the portfolio, according to

people familiar with the matter.

Investment success would help the prince win broad support in a conservative society that's being tested by reductions in cherished government handouts. Bonus payments for state employees were canceled, and ministers' salaries were slashed 20 percent in September. The government started raising the price of fuel at the end of last year. "If Prince Mohammed fails, the consequences for the country would be dire," says Seznec, the political scientist. "We would be back to the people being dependent on the state and the economy fully dependent on handouts." —*Matthew Martin, Glen Carey, and Dinesh Nair, with Javier Blas and Wael Mahdi*

The bottom line Prince Mohammed bin Salman wants to invest outside Saudi Arabia, but putting that money to work quickly will be risky.

Real Estate

An AIDS Charity Fights Builders in L.A.

▶ **AHF has spent more than \$4 million on a ballot measure**

▶ **"I don't see why only billionaires should get to shape policy"**

Los Angeles, long on sprawl but short on housing stock, is no stranger to development battles. But it's never seen anything quite like the clash over a proposal on the March 7 municipal ballot, known as Measure S, which would put a two-year halt on most major real estate projects.

Spearheading the initiative is the nonprofit AIDS Healthcare Foundation, which has supplied more than 98 percent of the more than \$4.5 million spent as of Feb. 18 on pro-S efforts, according to disclosure forms filed with the city. Critics question the motivations of the group, which is in the midst of a lawsuit to stop two 28-story luxury residential towers from going up next to its headquarters on Sunset Boulevard.

And the developer of those towers? That's **CH Palladium LLC**, which had put in about 51 percent of the \$2 million behind an anti-S drive as of Jan. 21.

Mohammed bin Salman



(Spending since then had not been disclosed by March 1.) Much of the rest is from others in real estate, including developer **SunCal** and the real estate investment trust **Kilroy Realty Corp.**

The developers' vested interests aren't tough to figure out. The AHF's stake in the fight is less obvious. While it's fronted other ballot measures, those were more closely related to the agency's core mission of providing health care to and advocating for AIDS patients, says Eric Sussman, a senior lecturer on the faculty of the UCLA Ziman Center for Real Estate, who's given money to the foundation over the years. "To get into real estate—that's a complete 180," he says.

Not to hear foundation President Michael Weinstein tell it. "Nonprofits have an important role to play in the community," he says. "I don't see why only billionaires should get to shape policy." In his view, forcing a building pause would give the second-largest U.S. city a breather to overhaul its outdated zoning laws and come up with a plan for tackling a serious affordable-housing deficit. Many of the people the foundation serves in Los Angeles are or have been homeless or struggle to pay rent.

There's no dispute among those in the anti-S camp that Los Angeles is in a housing crisis. They say that the answer is to keep building and that Weinstein's logic confounds them. Says Richard Green, director of the University of Southern California's Lusk Center for Real Estate: "If food is too expensive, what do you do, make it harder to grow food?"

The city has one of the nation's highest rates of cost-burdened residents—meaning they pay more than 30 percent of their income toward rent or mortgages. It's the third-most expensive market in the U.S. in terms of mortgage affordability, after San Jose and San Francisco, according to Zillow. The city's homeless population increased 11 percent in 2016 from 2015.

Opponents of S have accused Weinstein of squandering the AIDS charity's money on billboards and fliers in a development debate. "Our budget for 2017 is \$1.4 billion, so a tiny percent of it will go to this initiative," Weinstein says. According to a filing by the foundation, more than half of its

money comes from the 43 pharmacies it operates in the U.S. The rest is from grants, donations, and revenue from its Out of the Closet thrift stores.

Last year the foundation filed its lawsuit against the city and the developer to stop the towers going up next to its offices. It claims the City Council breached zoning and other laws in approving the project, granting exemptions to height and density restrictions, so-called spot-zoning decisions.

Spot-zoning can override the General Plan—the blueprint that guides L.A. development—on an ad hoc basis. The result, critics say, is a mishmash of edifices taller or denser than should be allowed, with little thought to effects on traffic. Measure S would temporarily prohibit such exemptions.

But the exemption route is the one most big builders go these days. The General Plan hasn't been tweaked in 20 years, though the population has exploded. Neither have most of the 35 community plans that set rules for individual districts. Attempts to refresh those plans have often been contentious.

On Weinstein's side in the fight are several homeowner associations, the Los Angeles Tenants Union, and former Mayor Richard Riordan. The current mayor, Eric Garcetti, opposes S, as do Governor Jerry Brown, the Los Angeles Area Chamber of Commerce, labor unions, and the antipoverty group United Way of Greater Los Angeles. The *Los Angeles Times*, in an editorial, called Measure S "a childish middle finger to City Hall." Dozens of urban-planning academics are in the anti-S coalition, including Dowell Myers of USC, who says Weinstein has blown a grievance about a local project into dangerous proportions. "This has gone nuclear," Myers says.

Neither side has released opinion polls, so there's no guide to guessing whether Measure S will pass. One outcome seems certain either way: more fights over housing.

—Nicole Piper

The bottom line A ballot measure in Los Angeles would make it harder to do any building in the city for the next two years.

"If food is too expensive, what do you do, make it harder to grow food?"
—Richard Green, director of the Lusk Center for Real Estate

Billionaires

Carlos Slim

Mexico's richest man, Slim controls **América Móvil SAB**, the biggest wireless company in the Americas, and owns 17 percent of New York Times Co.

① The Trump effect

► Since Donald Trump announced his run in June 2015, Slim's wealth has fallen \$15 billion, or 23 percent.



► The decline was spurred by drops in the peso and América Móvil's stock price.

② The big question

How will the tycoon fare if Trump gets his border wall and a Nafta redo?

③ He's flexible

► In December, Slim met Trump at Mar-a-Lago. "Trump is not the Terminator," he said later. "He's a negotiator."

► Only a quarter of América Móvil's revenue comes from Mexico, and Slim has done well with gold and silver mines and Spanish real estate. Since hitting a low point just after the U.S. election, his wealth has rebounded by about \$6 billion, to \$51.6 billion.

—Blake Schmidt and Andrea Navarro

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March 6 — March 12, 2017

Is Trump's Plan



Dangit

Shovel-Ready???

► The administration faces some of the same dilemmas that hampered the Obama stimulus

► “I do not believe that there is huge opportunity to radically change the system”

A month before taking office in 2009, Barack Obama promised “a bold agenda” to create jobs rebuilding U.S. roads and bridges with “shovel-ready projects.” Almost two years later, Obama conceded what Donald Trump may yet learn: “There’s no such thing as shovel-ready projects.”

In a Feb. 28 speech to Congress, Trump said he wants legislation to support \$1 trillion worth of investments rebuilding roads, bridges, tunnels, airports, and other crumbling infrastructure, putting millions of Americans to work in the process. But as Obama found out with the \$787 billion federal stimulus bill, lining up environmental reviews, permits, and the other approvals required for a large-scale project can consume years—in some instances even decades. William Ibbs, a professor of construction management at the University of California at Berkeley and president of Ibbs Consulting Group, points out that it took 23 years to replace the San Francisco-Oakland

Bay Bridge after it was damaged in the 1989 earthquake.

Big, transformative, economy-boosting projects don’t happen just because they’ve received funding, says Sarah Kline, a fellow with the Bipartisan Policy Center, a Washington-based research group focused on infrastructure. “Those types of projects are not sort of hanging around just waiting for money to fall from the sky,” she says. “There needs to be a longer-term outlook this time around.”

Trump hasn’t detailed how his infrastructure plan will be funded or what types of projects it will include. Republican and Democratic leaders in Congress disagree about how much new federal spending should be included; Senate Majority Leader Mitch McConnell has said he wants to avoid “a trillion-dollar stimulus.”

The American Recovery and Reinvestment Act of 2009 budgeted \$69 billion for infrastructure improvements, including \$48.1 billion for transportation. A 2011 Government

Accountability Office report found that while the recovery act helped fund tens of thousands of jobs, its “long-term benefits are unclear.” “I believe we missed an opportunity to do more,” Representative Steny Hoyer, the Maryland Democrat who was House majority leader at the time, said at a Feb. 7 event at the Brookings Institution in Washington on funding infrastructure.

The primary objective of the recovery act was to help pull the U.S. economy out of the Great Recession. One often heard criticism—at the time the legislation was passed and since—was that too much stimulus money was spent on short-term improvements such as bridge repainting and road repairs. That’s because the bill required funding for projects to be committed within about 18 months. The tight deadline precluded work on large-scale works that would have required bidding, design, and approvals, says Ed Rendell, a former Democratic governor of Pennsylvania and a co-founder ►

Not Stimulating Enough

Infrastructure spending in the 2009 Recovery Act

Construction	\$27b
Other transportation	\$21b
Clean/drinking water	\$6b
Corps of Engineers	\$5b
Federal buildings fund	\$5b
Broadband	\$5b
Total infrastructure	\$69b

DATA: CONGRESSIONAL BUDGET OFFICE

◀ of Building America's Future, a bipartisan coalition of elected officials that promotes infrastructure spending. (Michael Bloomberg, founder of Bloomberg LP, which owns *Bloomberg Businessweek*, is a co-chairman.) "Although there's no such thing as being able to stick a shovel in the ground the minute you get the federal award, you can shorten the process dramatically," Rendell says.

Trump wants to do just that. Among the raft of executive orders he issued during his first week in office was one to expedite environmental reviews and approvals for high-priority infrastructure projects. The federal government has no control over state and local approvals, so Trump's orders can help only on the margins, says Christy Goldfuss, former managing director of the White House Council on Environmental Quality under Obama. "I do not believe that there is huge opportunity to radically change the system so we can get from point A to point B with so many different players involved any faster," says Goldfuss, now vice president for energy and

environment policy at the Center for American Progress in Washington.

The past two administrations also focused on speeding up reviews for projects, and a process to do that remains in place. The highway bill passed in December 2015 created a Federal Permitting Improvement Steering Council that coordinates the work of different agencies to streamline project reviews and approvals. Says Richard Kidd IV, who headed the council until Jan. 20: "If this is a priority for the new administration, they should fill the executive director role as soon as possible and move out smartly." A White House spokesman says the council is still operating and a new executive director will be named.

Given the obstacles involved, the most effective approach to accelerating infrastructure projects might be for the federal government to provide more money to states and localities using existing funding formulas for short-term projects, says Jim Tymon, chief operating officer of the American Association of State Highway and Transportation Officials in Washington. The federal government could also help facilitate more longer-term projects.

One lesson Trump should take away from his predecessor's experience is that the public is impatient for results, says Ray LaHood, a Republican who was U.S. transportation secretary under Obama. If Trump doesn't make an infrastructure deal with Congress a top priority now, when he has the most political capital to achieve it, he'll face the same complaints as

Obama, LaHood says. "At the end of four years," he says, "if they haven't produced a big, bold transportation bill and a big, bold funding package, they will have missed an opportunity, and they will have an unfulfilled promise." —Mark Niquette

The bottom line Obama's infrastructure plan funded too much routine work, critics say. They hope Trump's will deliver transformative projects.

Financing

Raising Private Money For Public Projects

▶ Investors are eager to pay for infrastructure, but not all kinds

▶ "You don't just wake up and say, 'I'm going to do a P3'"

Boston's Big Dig, burying its central highway. New York City's Second Avenue subway extension. Denver International Airport. Landmark American public works, paid for the traditional American way: The government borrows money, usually before the first shovel goes into the ground.

Canada, Australia, and much of Western Europe do infrastructure differently. Consortia of private companies raise money and design, build, and operate projects for terms that generally run 30 years. In return, governments make yearly payments or dedicate a revenue stream, such as toll receipts, for the life of the contract. At their best, these public-private partnerships, or P3s as they're known, make infrastructure projects faster and cheaper. At their worst—well, ask Chicago about its parking meters.

In his inaugural address, President Trump said he intends to build "new roads and highways and bridges and airports and tunnels and railways all across our wonderful nation." To entice developers, he's talked about doing it with P3s. His campaign floated the idea of using tax credits worth 82 percent of the cash a consortium puts up for a project.

Public-private partnerships are rare in the U.S., where not all states allow them: Only five such projects completed financing in 2015. As a result,



Oakland Bay Bridge

not all public agencies have expertise in designing and managing such arrangements. "You don't just wake up and say, 'I'm going to do a P3,'" says Thierry Déau, chairman and chief executive officer of Meridiam, a Paris-based asset manager that's part of a private consortium undertaking a \$4 billion upgrade of the 52-year-old central terminal at New York's LaGuardia Airport. "Everyone always talks about a funding gap. There's more of a human gap than a funding gap."

In the LaGuardia project, the consortium partners issued \$2.4 billion in bonds and will pay back investors from the lease payments they collect from airlines and retailers operating stores at the terminal. New York Governor Andrew Cuomo has suggested that a revamp of John F. Kennedy International Airport could attract up to \$7 billion in private money. Pennsylvania bundled 558 bridge replacement projects into a \$1.1 billion partnership. Construction is due to wrap up around 2018, but the consortium will continue to collect payments from the state for an additional 25 years in exchange for maintaining the structures.

The P3 concept took off in the 1960s, when Spain and France began experimenting with inviting developers to construct and operate highways in return for tolls. For projects that don't have built-in revenue streams, governments can make what are known as availability payments, akin to rent-to-own arrangements. These can include "shadow tolls"—per-car fees paid by the state rather than drivers.

In such deals, the details can make all the difference. The South Bay Expressway in San Diego is one of several U.S. P3s operating tolls that filed for bankruptcy after revenue came in lower than projected. In 2008, Chicago leased 36,000 parking meters for 75 years to an investor group led by **Morgan Stanley** in return for \$1.1 billion. The city's inspector general later concluded that, in its rush to plug a short-term budget gap, the city undersold the rights by almost \$1 billion, infuriating residents.

Trump's advisers argued in a campaign document that his tax-credit approach to public-private partnerships would mean less taxpayer money would be needed upfront to fund his plans. His commerce secretary,

investor Wilbur Ross, suggests the projects would boost economic activity and generate enough revenue to offset \$140 billion in tax breaks for investors, a claim even some conservatives consider dubious.

House Speaker Paul Ryan says he won't support infrastructure spending without offsetting budget cuts. Economist Paul Krugman is among the critics who describe Trump's plan as corporate welfare, since it would pay developers to take on projects profitable enough to be appealing without the government subsidy. Ron Klain, who oversaw President Obama's \$800 billion stimulus spending program from 2009 to 2011, calls the proposal "a tax cut plan for utility industry and construction sector investors." Other critics say Trump's approach will favor revenue-producing assets like toll roads over such things as much-needed rural water projects.

Meanwhile, commercial banks and other investors with a background in project finance say there's ample money for infrastructure projects, but a shortage of deals and willing public partners. "Our view is that there is a lot of capital that's interested in the sector," says Tom Osborne, executive director of IFM Investors in New York. "It's about providing the right incentives to create additional projects." —*Brian Eckhouse, Amanda Albright, Martin Z. Braun, and Mark Niquette*

The bottom line Public-private partnerships are a novel way of funding infrastructure in the U.S., with only five such projects approved in 2015.

Financing

China's Bridge and Tunnel Addiction

► **Beijing wants private companies to help pay for its building binge**

► **"There isn't enough legal protection to ensure stability"**

With a global portfolio that includes Club Med and Cirque du Soleil, as well as assets in real estate, insurance, and pharmaceuticals, **Fosun Group** is one of China's most active deal-makers. Still, the 46.2 billion-yuan

(\$6.7 billion) railway project it unveiled in September was noteworthy. The Shanghai-based conglomerate announced it was taking a controlling stake in a proposed 270-kilometer (168-mile) high-speed rail line linking the eastern cities of Hangzhou and Taizhou. The deal, which also attracted investment from two Chinese automakers, is part of a new government strategy to have private companies take the lead in major infrastructure projects.

China spent more than \$10.8 trillion on infrastructure from 2006 to 2015, according to Bloomberg calculations. Outlays for roads, airports, ports, railways, and the like rose 17.4 percent last year, far outpacing the country's 6.7 percent expansion in gross domestic product.

With economic growth projected to fall to 6.5 percent this year, the lowest rate since 1990, President Xi Jinping's government is ever more dependent on the stimulus infrastructure projects provide. Beijing will invest 3.5 trillion yuan in railways by 2020, which among other things will pay for a more than 50 percent expansion of the country's high-speed network, the State Council Information Office said in late December. The central government also has pledged 3.4 trillion yuan for rural water, road, electricity, and communication projects through 2020, the official Xinhua News Agency reported on Feb. 17. "There's just an absolute boatload of infrastructure investment going on," says Tom Orlik, chief Asia economist at Bloomberg Intelligence. "In some respects, it's almost like the classic Keynesian example of paying someone to dig a hole and paying someone to fill it up."

The relentless spending on new construction is weighing on China's public balance sheets. Total debt was about 260 percent of GDP in 2016, up from about 160 percent in 2008, according to calculations by Bloomberg Intelligence. "The pace at which China has taken on debt rings alarm bells," Orlik and fellow Bloomberg Intelligence economist Justin Jimenez wrote in a report published on Feb. 23, noting that precipitous increases in debt in other countries have



Norman Foster

The British architect (and pilot) has become the go-to designer for world capitals looking to upgrade their airports

Cities have leveled mountains and dredged harbors for architect Lord Norman Foster and his airports. His firm, Foster + Partners, has designed them for Beijing, Hong Kong, London, Panama

City, and Amman, Jordan. Soon the firm—which also recently designed the London headquarters of Bloomberg LP—will add Mexico City to its list of air terminals. That hub, conceived in partnership with the Mexican architect Fernando Romero,

isn't scheduled to be completed until 2020, but the renderings adorning kiosks in the existing airport show a building that resembles a spaceship. It will be a feat of engineering: The largest space under its Buckminster Fuller-esque glass ceiling spans more than 170 meters, or 558 feet.

Reached by phone in Madrid, Foster talked with Bloomberg's James Tarmy about what separates a good airport from a bad one and, more important, what travelers can expect from the airport of the future.

What do you want out of an airport?

Traveling is a kind of tense affair. It quickens the pulse—and, statistically, the incidence of heart attacks is high in airports. Anything that makes that experience more delightful and more relaxing, more calming and more pleasurable, is in that sense the goal.

How is that achieved?

Why don't I start with the first airport I was asked to do [Stansted, England, completed in 1991]. The guy who handed out contracts at the British Airports Authority, an engineer named Norman Payne, said, "Just thinking about a new generation of airports: If you had a

clean sheet of paper, what would you do?" And so I said, "Wouldn't it be nice if we could see the sky and had natural light? And wouldn't it be great if you could see if it was cloudy or rainy or the sun was shining?"

Seems uncontroversial.

Airports are deep and not very permeable. They rely on a blind man's bluff to guide you. But what if you could see the scenery outside? In an ideal airport, you move through it seamlessly—it's navigable, and it's intuitive.

an airport and looking at your watch and searching for your departure gate, that disorientation is disturbing. It's not an accident that it's used as a form of torture in its more extreme cases.

There's a certain irony—that you're laboring to open up airports just as air travel has become even more miserable for everyone who steps on a plane.

Historically, whether they're train stations or airports or seaports, they're gateways to a nation, and they do have highly symbolic qualities. They were all celebratory, even if your destination was a metal tube. Even when you boarded great ships with their grand decks, you eventually ended up huddled in a cabin, so there is a historic continuity here.

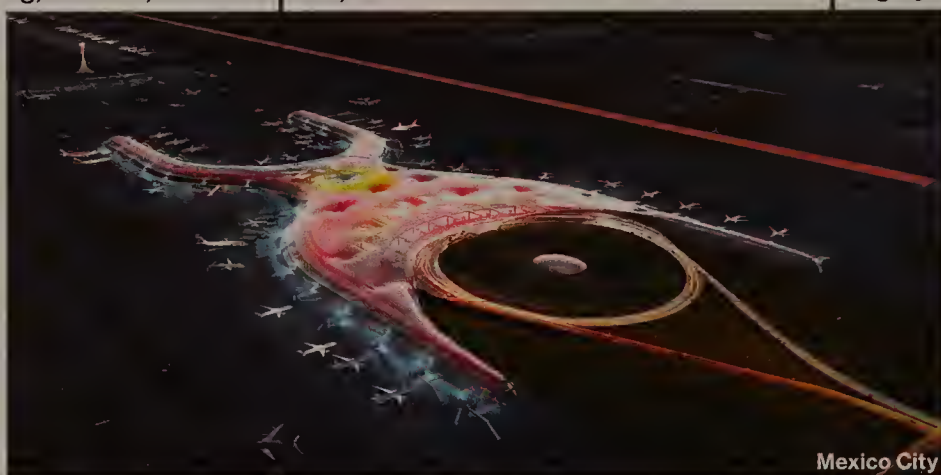
Which airports, excepting your own of course, do you admire?

It's at a small scale, but the Dulles Airport that Saarinen designed in Washington, D.C., with the concept of the mobile lounge was truly radical then,

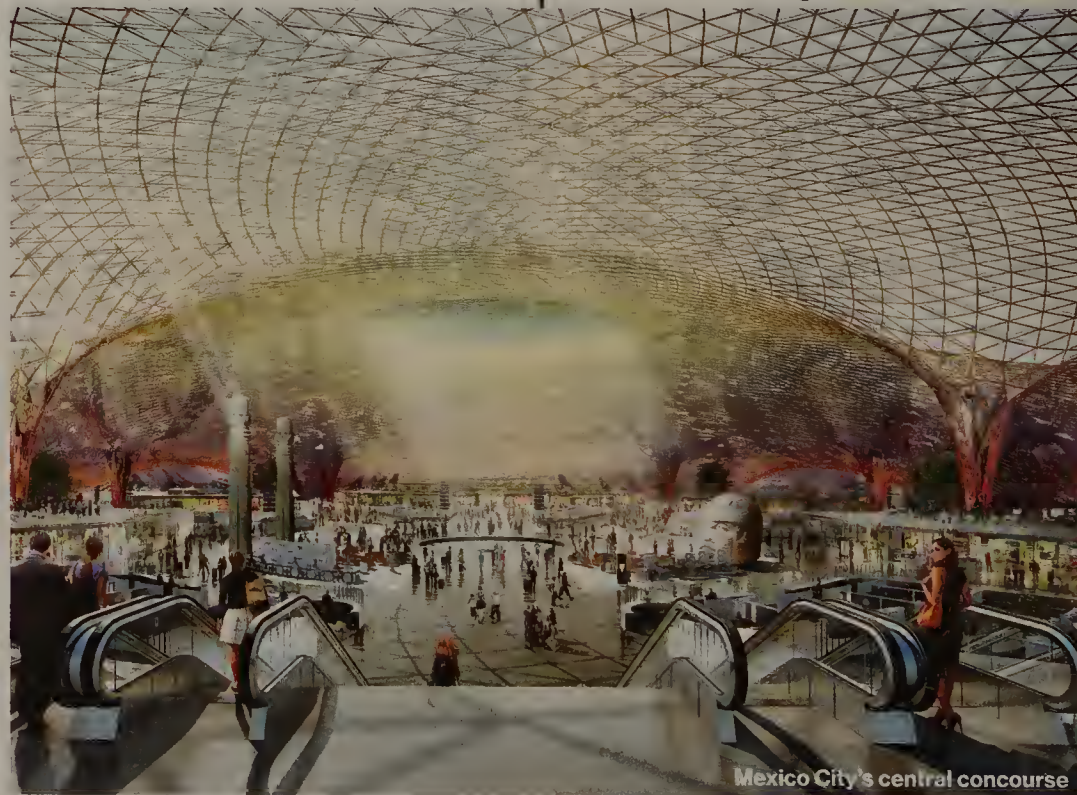
and would almost be radical at any time. I think that Tempelhof (in Berlin) is also an inspirational example from the past. If you look at images of that vast cantilever, where aircraft would drive underneath this huge protective roof, I think that this was bold and farsighted in its time.

I'm not sure I've been in a totally intuitive airport, ever.

There's nothing more disconcerting than this feeling of helplessness, of being lost in a maze. It might be one thing to be lost in a maze on the grounds of a country house for pleasure, but if you're lost in



Mexico City



Mexico City's central concourse

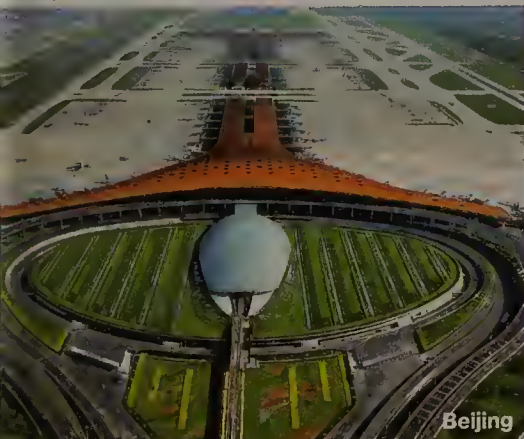
That's an unexpected choice, no?

I'm aware that any conversation of that airport, depending on the company you're in, can be contentious, because it was born out of a rather difficult historical period. But the architecture transcends. **And on the flip side, which airports do you abhor?**

The trouble is, if I tell you, you'll quote it, and I think you know the airports without my naming them. It's no secret that as a research project we've been promoting [a Thames] estuary airport. [Heathrow] can do a Band-Aid here and a Band-Aid there, and at a certain point you're getting diminished value, and at a certain point you have to make a fresh start. You would never put Heathrow where it is now.

So the Mexico City airport is designed to avoid these mistakes?

Mexico is one of those radical moves. Instead of having a horizontal roof and vertical walls, we've elected to create a kind of continuous skin, a membrane which can be a wall, a roof, a link to the aircraft. It takes those positive qualities I've described and lifts them one step further.

**Presumably you didn't know travel would be so politicized when you began your designs. Nevertheless, the resonance of a giant global airport in Mexico is hard to avoid.**

I know what you're referring to, but the politics of a nation are cyclical. A globally connected world is not going to suddenly become a series of separate islands. We're not going to close down airports in the U.S. or U.K., either. There's no way. You can't disconnect a connected world in one political cycle that's four years or eight years. It's a blip in economic and social history.

◀ been a prelude to a financial crisis.

China's central and local governments "need more help so they're not only funding projects by themselves," says Gabriel Wong, head of the China corporate finance practice in Shanghai for PwC. That's why the country has begun experimenting with public-private partnerships (PPPs) in which private investors supply a large portion of the financing for a project in exchange for a promised stream of payments, either from the government or from users. China's National Development and Reform Commission announced PPPs worth 4.23 trillion yuan from May 2015 to October 2016, Xinhua reported in October. The Finance Ministry announced a roster of more than 500 projects valued at 1.2 trillion yuan in October, according to *China Daily*.

Whether the new model will alleviate the stress on government finances is uncertain. Persuading private investors to join PPPs is a challenge: At least 40 percent of the companies involved in PPPs are state-owned, according to a Dec. 16 report by BMI Research, "making the projects less of a public-private partnership and more of a mostly public partnership." With returns on Chinese projects typically ranging from 5 percent to 8 percent, most PPPs are not appealing to private investors, according to Fitch Ratings. Also, companies need to be wary of teaming up with debt-ridden local governments that may not be able to make their promised contributions. "We are concerned about local governments' fiscal strength as the economy slows," says Li Chuan, vice president of China Railway (Shanghai) Investment Co., a unit of publicly traded construction company **China Railway Group Ltd.** "If development of regional economies isn't sustainable, PPP models won't be sustainable."

Investors in PPPs also run the risk that public entities will alter the terms of an existing partnership, exposing them to losses. That's a particular concern in China, where the combination of a weak legal system and single-party rule discourages many investors from seeking redress through the courts. "There isn't enough legal protection to ensure stability of government policy," says China Railway

Investment's Li. "Government ministries have announced a lot of measures to support PPP development, but there hasn't been legislation for PPP."

Some economists say the effort is misguided, because the payoff from these projects is limited. Researchers at the University of Oxford's Saïd Business School examined 95 large-scale road and rail projects in China and found that more than half destroyed—rather than created—economic value. "Overinvesting in unproductive projects results in the build-up of debt, monetary expansion [and] instability in financial markets," according to the report.

It also diverts government resources from other important needs, such as education and health care, says

Atif Ansar, one of the authors. "China has really become addicted to infrastructure investment," he says. "Every time the business cycle slows down, the government has tended to press down the accelerator."

Moreover, many projects are in remote regions where there's not enough demand to support them, making them unattractive to would-be investors, Ansar says.

Some say China is making the same mistake as Japan, which spent trillions of yen on infrastructure projects that did little to reverse economic stagnation after the collapse of the 1980s property bubble. Many of the proposed projects in Central and Western China "are not going to make money for five years or even 10 years," says Matthew Li, China economist with consulting firm IMA Asia in Sydney. "All of the low-hanging fruit has already been picked, so in the future more and more projects will tend to be nonprofitable, bad projects."

—Bruce Einhorn, with Jeanne Yang, Judy Chen, and Jing Zhao

\$510
billion

China's planned investment in railways by 2020

The bottom line Eager to contain public debt, Beijing blessed hundreds of new private partnerships last year.

B Edited by Cristina Lindblad
Bloomberg.com



ONE. HUNDRED

50



D. PERCENT.

51

STEPHEN MILLER
ISN'T JUST A TRUMP
MOUTHPIECE. HE'S
ALSO A POLICY
MASTERMIND

BY JOSHUA GREEN

Stephen Miller's corner office in the West Wing of the White House is utterly barren—no pictures on the walls, no books on the shelves, no indication even of who inhabited the space a month earlier, before the Obama administration cleared out. "Couldn't tell you," Trump's intense and polarizing 31-year-old senior policy adviser says with a shrug. Miller isn't being unfriendly. Rather, his spartan surroundings and indifference to small talk are byproducts of a life pared of every detail that doesn't advance the singular glory of Donald J. Trump. Concerned that Trump wasn't accruing the praise Miller felt was merited, he wanted to set the record straight. "Donald Trump has fundamentally realigned American politics," he says, stabbing a finger on his desk. "It's time the media acknowledge this and give him the credit he deserves."

That's not, to put it mildly, the story preoccupying the media right now. Over the last few weeks, Trump's White House has exploded in chaos and infighting—a situation Miller exacerbated by helping to mastermind the sudden and much-criticized rollout of Trump's Jan. 27 executive order

banning people from seven Muslim-majority countries, which federal judges swiftly blocked. In fact, it was no accident that the order was sprung without warning on a Friday afternoon. Trump's chief strategist, Steve Bannon, arranged the timing in the expectation that opponents, freed from work on the weekend, would stage huge protests—drawing maximum attention and galvanizing Trump supporters as the president followed through on a controversial campaign promise, says a senior administration official.

The order did indeed spark nationwide demonstrations, but things veered off script from there, as the White House struggled to explain to law enforcement officials, federal agencies, and foreign governments what the hastily drafted document did and didn't say. Miller in particular became the target of withering attacks by everyone from Republican elected officials to Stephen Colbert, host of *The Late Show*, which did a skit featuring Miller's severed—but still talking—head on a spike. Joe Scarborough, the co-host of MSNBC's *Morning Joe*, with whom Trump has a complicated psychological fascination, spent days deriding Miller, whom he dubbed "Little Napoleon." Yet not only has Miller survived the uproar and calls for his firing but he appears to be ascendant at a time when other West Wing staffers are diving for cover.

Over the contentious first month of Trump's presidency, key advisers have struggled to communicate his policies. His press secretary, Sean Spicer, has been flustered at the podium and cruelly lampooned on *Saturday Night Live*. Presidential counselor Kellyanne Conway has been blacklisted by several news shows for telling falsehoods and cited by the U.S. Office of Government Ethics

for promoting Ivanka Trump's fashion line on Fox News, a "clear violation," it said, of rules against misuse of her White House position.

Meanwhile, Miller has maintained an unwavering composure under attack. On Feb. 12, the White House sent him out to do the rounds of Sunday talk shows. Where Spicer and Conway struggled, Miller, in his tailored suit and skinny tie, proved a smooth and imperturbable aggressor, confidently pressing Trump's most dubious claims. On ABC's *This Week*, Miller called Trump's immigration stance "magnificent" and, grinning slyly, lectured host George Stephanopoulos that Trump's Mexican wall would "pay for itself many, many times over."

When Stephanopoulos demanded Miller produce evidence for the president's assertion that he'd lost New Hampshire because "thousands" of illegal voters were bused in from Massachusetts, Miller looked almost bored by the challenge. "George, it is a fact—and you will not deny it—that there are massive numbers of noncitizens in this country that are registered to vote," he replied. "That is a scandal. We should stop the presses...and I'm prepared to go on any show, anywhere, anytime, and repeat it, and say the president of the United States is correct. One. Hundred. Percent."

So audacious was Miller's performance that it became an internet meme. But he was really playing to an audience of one, and he scored a rave. Afterward, Trump tweeted: "Congratulations Stephen Miller—on representing me this morning on the various Sunday morning shows. Great job!"

Miller's resiliency after fumbling the refugee ban offers a lesson in how to survive the Darwinian world of Trump's White House. To win favor, you must amplify Trump's belief that he's already accomplished great things; defend even his most outrageous claims as self-evidently correct; and look sharp, while projecting unshakable self-confidence.

It helps, too, to have outside allies who have Trump's ear. The chieftains of right-wing talk radio view Miller as one of their own—he got his start in politics as an *enfant terrible* on conservative shows while still in high school—and they don't hesitate to give him air support. "All that noise that the media's making, 90 percent of it is bullshit," says Sean Hannity, the Fox News television and radio host who's close to the president and made himself available for this story at the suggestion of the White House. "Anybody writing or saying anything about him, including these dumb cable hosts—they have no idea of the relationship between the president and Stephen Miller, [who has] the president's full support. It's an art form, what Steve does for Donald Trump."

More important, Miller has the unwavering backing of Bannon. "I'm very sorry that the mainstream media does not like President Trump's agenda," Bannon says. "But they are going to have to embrace the fact that they, as the opposition party, who tried to destroy Donald Trump as a candidate, lost. And they lost significantly, OK? So they're going to have to sit there, and they're going to have to deal with the implementation of Donald Trump's agenda."

Bannon says Miller is being targeted by the media to thwart Trump. "When Joe Scarborough and the mainstream media attack Stephen Miller," says Bannon,

"it's just like any opposition party. They'll try to take out some of the best young people in any organization. Stephen is a tough guy, I can tell you from the campaign. He's used to being absolutely vilified." (In a statement, Scarborough called Bannon and Miller "opposition party hacks [who] humiliate themselves by being so ignorant of American history and the Constitution that they declare in their big-boy voices that the president's powers are not to be questioned.")

It would be wrong, though, to view Miller as merely another embattled Trump mouthpiece. Unlike Conway or Spicer, he isn't a mercenary defending the president against all comers but a true believer charged with turning Trump's campaign rhetoric into actual policy.

Miller is an adroit combatant in part because Trump's ideas, especially on immigration, closely track with his own worldview. Miller spent 10 years as a policy staffer on Capitol Hill, most recently as the top aide to Senator Jeff Sessions, the new attorney general. Under Sessions, Miller was busy assembling the elements of a restrictionist "America First" nationalism long before Trump arrived on the scene. Today he has a heavy hand, along with Bannon, in crafting Trump's policy plans and executive orders. Miller also helps draft the president's major speeches, including the one Trump delivered to Congress on Tuesday night. When Miller goes on television to defend Trump's words, he's often defending his own writing. In a sense, Trump is giving voice to Miller as much as the other way around.

Trump tends to flummox just about everyone in Washington, but, within his close-knit circle, the plan is crystal clear. "It's all stitched together," Miller explains. "What you do on immigration policy, what you do on education policy, what you do on tax, regulatory, and energy policy all connects together—and will be based on a simple determination about what will make life better in America for American citizens."

Miller's survival is significant because his success or failure within the administration will go a long way toward determining whether the Trump insurgency becomes more than just a style of campaigning. Even as a 10-year veteran of Capitol Hill, Miller isn't a seasoned policy hand. In any other Republican administration, he'd have been lucky to land a second-tier job at a third-tier agency. But in the Trump White House, Miller stands out: He's one of the few people in the president's inner orbit who has actually worked in government.



BANNON. "STEPHEN IS THE DRIVING FORCE OF IMPLEMENTING THE IDEAS OF PRESIDENT TRUMP."

Prior to their roles in the current administration, Trump, Bannon, Conway, Spicer, Jared Kushner, and White House Chief of Staff Reince Priebus, along with Steven Mnuchin and Gary Cohn, Trump's top two economic advisers, had no government experience at all.

As Trump's agenda has stalled on everything from Obamacare repeal to refugee policy, Miller has become, almost by default, the man Trump partisans are relying on to deliver for them. "The president's ideas have to be fleshed out into a program of action," says Bannon. "Stephen is the driving force of implementing the ideas of President Trump."

Miller's talents for showmanship were nurtured at an early age. The son of Democratic parents reared in liberal Santa Monica, Calif., he rebelled by becoming a conservative with a talent for winning attention. At 16, he became a talk-radio sensation when he started making grand, performative displays of challenging the lefty groupthink at his public high school and then calling into the conservative, nationally syndicated *Larry Elder Show* to brag about his exploits, such as getting school administrators to reinstate the Pledge of Allegiance. At Duke University, Miller became a leading conservative activist and an outspoken defender on TV and radio of the white lacrosse players wrongfully accused of raping a black stripper.

After college, he headed straight to Washington, where he briefly worked as the spokesman for a pair of Republican House members, one of whom was Tea Party firebrand Michele Bachmann of Minnesota. But he soon found his way to Sessions, who was so conservative that he was widely regarded as an ineffectual gadfly, even by members of his own caucus. Miller, who won notoriety with reporters and aides for the passion and prolificacy of his press releases, was viewed similarly: as a crank. Although he operated at the fringe of Washington politics, he carried himself as a significant figure in the center of the action.

The impression of Sessions and Miller as ideologues tilting at windmills stemmed from their position as ardent anti-immigration hardliners at a time when Republican leaders were eager to shake off that image to broaden the party's appeal to the growing Hispanic population. "Sessions would go down to the Senate floor and just bang away on that message, day after day," says Jim Manley, a top aide to the former Democratic Senate Majority Leader Harry Reid. Although they succeeded in halting immigration bills such as the 2010 Dream Act, which gave children of illegal immigrants a path to citizenship, Mitt Romney's defeat in the 2012 presidential election—he carried just 27 percent of Hispanic voters—persuaded GOP leaders to push immigration reform in earnest.

In 2013, Sessions and Miller led the Senate opposition to the "Gang of Eight" bill, a bipartisan immigration reform measure led by eight senators that would have given a path to citizenship to the 11 million undocumented immigrants living in the U.S. while enlarging guest-worker programs for low-skilled workers in industries such as agriculture. The Gang of Eight bill became the central drama in U.S. politics in part because it had the seemingly unstoppable momentum of being a vehicle for the presidential ambitions of Senator

Marco Rubio of Florida, the GOP's rising star. Even Fox News's Hannity climbed aboard. To many observers, Sessions's loud objections seemed pointless. Not to Miller. "I had the opposite view," he says. "My view was that there was no place I could be where we could have a greater influence on the outcome of policy."

Although the bill easily cleared the Senate, it bogged down in the House, in no small measure because of the efforts of Sessions and Miller. "If you go back and look at how we fought the bill," says Miller, "what you'll notice is the astonishing degree to which Sessions's opposition was grounded in research, details, specific criticisms—line by line, page by page." Sessions, a former federal prosecutor, attacked the Gang of Eight bill as if he were arguing before a judge.

His style rubbed off. "His whole approach to politics came from the vantage point of being a prosecutor," says Miller. "It made a profound impression on me and shaped how I approach policy." Indeed, Miller's slashing, polemical style, in policy papers and on television, has the feel of a prosecutor interrogating a hostile witness, with crisp, point-by-point refutations of the opposing argument that drive toward a clear verdict.

Initially, the collapse of immigration reform appeared to do nothing to elevate Sessions or Miller—or their ideas. An abiding complaint of populist conservatives at the time was that their views weren't represented in mainstream media or even in conservative alternatives such as Fox News, which, a White House official close to Miller argues, "only aired stories about Benghazi and the IRS scandal."

But there was one place where the issue of immigration caught fire and quickly spread: talk radio. "Among those informed about immigration, [the Gang of Eight bill] was shocking," Sessions told *Bloomberg Businessweek* last year. "It was a complete refutation of the voters' will—a kick in the teeth to decent Americans." Washington eventually moved on to other issues. But Sessions said he could tell from his frequent radio interviews that a backlash was brewing.

"He's 1,000 percent right," says Hannity, who converted to Sessions's position and promoted it on TV and radio. "I've been down reporting from the border at least a dozen times, from the Rio Grande to San Diego. You know why? It kept rating. People wanted to see it. My audience was learning from it."

People close to Trump believe that the movement that powered him to victory has its roots in the reaction to the Gang of Eight bill. One reason Trump's strength took so long to register with the political cognoscenti is that, as Sessions suggests, it spread through a medium they didn't pay attention to: right-wing talk radio and affiliated sites such as *Breitbart News* and the *Drudge Report*. Trump did pay attention. In 2014, when an unheralded economics professor from Virginia, Dave Brat, upset House Majority Leader Eric Cantor in a GOP primary race, Trump gave an interview to *Breitbart* that delighted conservative populists by blaming unchecked immigration.

"[Cantor's loss] is a great signal, because it tells them people want to get our house in order," Trump said in the 2014 interview. "If you look at what's happening in Texas right now, or other places, people are just flowing

THESE DUMB GABLE HOSTS -- THEY HAVE NO IDEA OF THE RELATIONSHIP BETWEEN THE PRESIDENT



into this country just like it's an open-door policy. We're supposed to provide health care, and we're supposed to provide education—we're supposed to provide everything... We take care of everybody else before we take care of our own people."

Miller swooned. In an e-mail the same day to a friend (who shared it with *Bloomberg Businessweek*), he wrote: "Trump gets it. I wish he'd run for President."

After the defeat of immigration reform, Miller began roughing out a broader policy architecture to encompass what Bannon would later dub "economic nationalism." It began defensively. When Obama issued an executive order in November 2014 shielding millions of undocumented immigrants from deportation (the Supreme Court later blocked it), Miller wrote an "Immigration Handbook" to coach Republicans on how they should respond: "His order grants five million illegal immigrants work permits, Social Security, Medicare, and free tax credits—taking jobs and benefits directly from struggling American workers." It included a densely footnoted history of U.S. immigration and a litany of what Miller views as its often-deleterious effects on the economy.

In January 2016, Miller shifted from defense to offense, joining the Trump campaign as a speechwriter just before the Iowa caucus. Immigration, of course, was central to Trump's agenda, and he discovered a fierce advocate in Miller. While Trump's vow to build a wall along the U.S.-Mexico border drew the most attention, his rallies also routinely featured parents of children murdered by illegal immigrants. Miller vehemently believes that the media is complicit with Democrats in hiding the negative aspects of both legal and illegal immigration—everything from the downward effect on wages caused by a surplus of workers to the danger posed by the 925,000 undocumented residents (170,000 with criminal convictions) whom U.S. Immigration and Customs Enforcement officials say were issued orders to leave the country but still remain.

"The media tends to cover immigration issues through the frame of how it impacts everybody but actual citizens of the United States," Miller complains. "In other countries like, say, Britain, 'migrant reform' is understood to be changes they can make to the immigration system so it works better for people living in Britain. Maybe that's clamping down on abuse of migrant benefits. Maybe that's ensuring that guest-worker programs don't displace young British people from entering the workforce."

Maybe it has to do with public safety, national security—but it's always understood in that context. Only in the U.S. has the term been co-opted to represent a wish list for special-interest groups."

Miller and Bannon want Trump to undertake a radical recasting of U.S. policies, from immigration to trade to taxation, that would invert this frame by making the interests of U.S. citizens (or what Miller and Bannon perceive to be their interests) predominant, almost to the point of exclusivity. This will entail confronting trade-offs most people prefer to ignore and making hardheaded decisions on emotionally charged issues, such as the status of refugees and Dreamers—decisions Miller, with Trump's blessing, has begun tackling already.

The order temporarily banning refugees from seven Muslim-majority countries is a prime example. Miller contends that national security concerns warranted the move but adds that refugees compete with U.S. workers ("Obviously, a smaller number of refugees will have some effects in terms of raising wages") and burden U.S. taxpayers ("because of how expensive American benefits programs are"), whereas "regional resettlement" would be cheaper. "For the prices of resettling one refugee in America," he says, "you can support 12 in their home region." (His numbers come from a study done by the Center for Immigration Studies, a conservative think tank in Washington.)

Despite courts blocking his refugee ban, Trump has already done a great deal. He's ended the "catch and release" protocol by which enforcement agencies release people caught in the country unlawfully as they await a judicial hearing; he says he'll force recalcitrant foreign countries to take back their criminal aliens; he's ordered the Department of Homeland Security to begin construction of the border wall; and he's greatly empowered immigration enforcement officers to arrest not just criminals but anyone they deem "a risk to public safety or national security."

"People don't appreciate the extent to which we've set in motion a substantial and long-overdue change to U.S. immigration policy, simply by directing the DHS to use existing laws and authorities," Miller says.

In Miller's view, documented and undocumented immigrants have taken jobs rightfully belonging to American citizens while reducing wages for everyone by flooding the labor market with workers. While working for Sessions, Miller often cited the quadrupling since 1970 of the foreign-born population in the U.S. to 41 million people, while noting that working-age U.S.-born Americans without jobs number about 58 million. "At a time of automation, globalization, intense pressures on the working class, outsourcing, offshoring, and enormous numbers of blue-collar workers who are unable to find work," he says, "it makes little sense to bring in massive numbers of workers to compete at the low end of the labor scale or through abuse of any particular program [such as the H-1B visa program for highly skilled workers] to have the effect of replacing those workers or driving down their wages."

While economists generally agree that tighter labor markets cause wages to rise, Miller's plan risks stunting overall economic growth. "You'll have a hard time finding a stronger advocate for full employment than me," says Jared Bernstein, who was Vice President Joe

Biden's chief economist. "But I never thought that restricting access to our labor market or kicking out people who are here is the way to achieve it because, humanitarian implications aside, that damages both the supply side of the economy and economic growth. We already have a labor force that's growing too slowly. I don't think Trump will hit his GDP growth target either way, but he'll miss it by more if we further slow the pace of labor force growth."

Economic nationalism, as defined by Trump's advisers, would seize the levers of government and the presidential bully pulpit to direct resources to helping marginalized U.S. workers. It includes: tightening the labor market by restricting immigration and deporting those here illegally; reducing refugee admissions and reallocating funds to domestic initiatives; renegotiating trade deals; reforming the H-1B visa program, likely by raising the minimum income for skilled workers; stripping away business and environmental regulations to spur economic growth; and reducing corporate tax rates through a border-adjusted tax that would favor domestic production and discourage U.S. companies from moving their headquarters abroad.

To this, Trump has added bullying U.S. corporations like Carrier Corp. and Ford Motor Co. to maintain domestic employment and limit foreign expansion and insisting the Keystone XL and Dakota Access pipelines use American steel. Although other issues have taken precedence, a senior administration official asserts that a trillion-dollar infrastructure plan that includes an infrastructure bank, direct government spending of \$250 billion (in addition to tax breaks), and 100-year bonds remains a priority that will help U.S. workers.

Miller's us-vs.-them vision for overhauling U.S. policy and his combative defense of Trump have all the elements of a compelling talk-radio rant. But actually enacting Trump's agenda would deliver a tremendous shock to the political system, one sure to spark massive resistance. Trump can't go it alone. For all the impact his executive actions have had on U.S. immigration policy, the bulk of his agenda is legislative—and it has slowed to a crawl, despite Republican majorities in the House and Senate.

On Feb. 17, Republican Senate Majority Whip John Cornyn said, "The border tax is on life support." While Homeland Security can begin building a border wall, there's little sign that Congress will allot the full \$20 billion it's estimated to cost. And at least for now, Congress has shown little interest in Trump's desire for a \$1 trillion infrastructure plan.

In his Tuesday speech to Congress, Trump finally made a direct appeal for support. The imperative now shifts from talk to action. Trump is, in large measure, counting on Miller to navigate the treacherous legislative terrain and find ways to coax and reassure skeptical lawmakers. "I understand his vision, his ideas," Miller says. "I can be an implementer."

It won't be a natural role. Miller's experience on the Hill as an angry tribune of populist conservatism rarely involved the messy give-and-take of legislating. Under Sessions, his energies were directed at halting a president's agenda. Enacting one of his own is so far proving to be much harder. **B**

THE MIND

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By Felix Gillette

*Illustrations by
Sally Thurer*

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or years, YouTube has served up almost every imaginable kind of video. The site's top trending attractions on a recent afternoon included clips of a gymnasium roof collapsing in the Czech Republic, a colossal alligator lumbering across a footpath in Florida, some North Korean refugees digging into American barbecue for the first time, and a guy demonstrating how to wash a car with a baby. (Step one: Hand the baby the hose.) Now, a dozen years after its creation and about a decade after its absorption into Google Inc., YouTube is on the verge of adding yet one more genre—a category of programming that has long eluded it. YouTube is finally getting regular TV.

On Feb. 28, YouTube Inc. announced a new service that will deliver an assortment of major television channels to paying customers via the internet. For \$35 a month, sometime this spring, subscribers to YouTube TV will be able to watch the top four broadcast networks—ABC, NBC, Fox, and CBS—and 35 or so of their affiliated cable channels, including ESPN, Disney Channel, MSNBC, National Geographic, and Fox News. Among other enticements, YouTube TV will give subscribers a DVR tool for recording shows and unlimited storage space in the cloud. The only catch is that shows are automatically deleted after nine months.

Subscribers will be able to watch YouTube TV on smartphones, tablets, laptop computers—pretty much however they want. The mobile apps are designed to easily “cast” from smartphones to larger screens, perhaps even—for we olds—actual TV sets. Throughout the app, native YouTube content will be layered in alongside the network shows. The goal, executives say, is not so much to lure older viewers away from their cable subscriptions, but rather to coax youngsters into paying for a package of linear TV channels for the first time. “This is TV reimagined for the YouTube generation,” says Christian Oestlien, director of product management at YouTube.

YouTube TV arrives at an uneasy time in the television industry. For several years the percentage of households in the U.S. that pay for a cable or satellite subscription has been inching downward. This, in turn, has increased pressure on the major networks, which rely heavily on the lucrative per-subscriber licensing fees they collect from cable and satellite operators.

The networks have begun licensing their programming to a new crop of services—such as Dish Network's Sling TV, AT&T's DirecTV Now, and Sony's PlayStation Vue—that distribute some subset of the TV universe (typically 20 to 120 channels) over the web at a lower cost for consumers than a traditional cable package. Later this year, Hulu LLC, a joint venture



backed by several major media conglomerates, is expected to introduce a competing product.

These TV-lite packages offer many of the same enticements (they're low-cost and mobile-friendly) now being touted by YouTube, yet none has gotten off to a particularly strong start. Sling TV, which launched in February 2015, recently topped 1 million subscribers, less than 1 percent of the 120 million U.S. households that currently have some form of TV. PlayStation Vue, which entered the market shortly after Sling, has attracted upward of 100,000 customers. In January, AT&T revealed that DirecTV Now drew about 200,000 customers during its first month of operation.

No one is making much money, if any, says Dan Rayburn, an analyst at Frost & Sullivan Inc. The services, he says, are priced too low (usually \$20 to \$65 per month) to cover the costs of licensing premium programming from the networks. “I don't buy it as a successful business model,” he says. “None of these services would be able to survive without the backing of their parent companies.”

Even so, TV-curious tech companies keep trying. In recent years, Apple, Microsoft, and Amazon.com have considered taking a crack at the market. “In the next six months, we're going to see a major bake-off,” says Brett Sappington, senior director of research at Parks Associates Inc.



YouTube's Kyncl, Oestlien, and Mohan

YouTube TV will come into the world with a branding advantage over its competitors. Some observers believe that people weaned on YouTube from the crib will instinctively follow wherever it leads them. “With younger viewers, we feel like you should fish where the fish are, and YouTube has a young audience,” says John Skipper, president of ESPN Inc. and co-chairman of Disney Media Networks. “We also like their mobile emphasis and that they understand how to use data to find out people’s predilections and to make their experience better.”

“We’ve been talking about this concept of bringing together the best of TV and the best of YouTube for a long time,” says Neal Mohan, YouTube’s chief product officer. “We want to be the whole universe of video content.”

“These two different types of media have evolved along separate, parallel paths,” says Susan Wojcicki, chief executive officer of YouTube. “They’ve been inching closer and closer together. This is the final convergence.”

YouTube TV is organized around three zones—a home tab for finding things to watch, a live tab for scrolling through channels, and a library tab that organizes a user’s recorded shows. Mohan says the ability to record limitless amounts of TV was one of the features that most excited early testers.

The app’s home page brims with recommendations: what to watch now on live TV, what’s trending on YouTube, what upcoming shows you might want to record. Product manager Oestlien says the process of providing compelling recommendations is based on everything the company has learned over the past decade while guiding billions of people through the galaxies of material on YouTube. What you previously chose to watch or reject largely determines what will be recommended to you. The result is a sly machine that’s forever learning what kinds of things you enjoy watching and spoon-feeding you more of it. “We really want to re-create the experience that you have on YouTube, where you begin with one show and then move seamlessly through a ton of great content,” Oestlien says.

Viewers can also search for specific shows or genres. A query for cooking shows, for example, might turn up recommendations for *Hell’s Kitchen*, the TV staple from Fox, alongside *Epic Meal Time*, a web-only show produced by Studio71 GmbH. “Search-based navigation is Google’s sweet spot,” Mohan says. “We should be able to do that better than anybody else.”

Everything on the app is highly personalized. Within a single YouTube TV subscription, a family can set up as many as six individual accounts. Each family member gets a profile, customized recommendations, and a personal library—all of it untouched by the irritating preferences of others. “That



way your own YouTube TV experience doesn't have to get polluted with what your spouse or kid is watching," Mohan says.

Internet TV has often been less reliable than cable or satellite. Maddening disruptions tend to take place during the biggest programming events, when surges in viewership can reduce everything from a World Cup soccer match to the *Game of Thrones* season finale into a spinning buffer wheel of outrage and recrimination. YouTube executives say they can do better. "Something that tends to be taken for granted, but is actually a pretty herculean effort, is the years of video-serving infrastructure that we've built up," Mohan says. "Every minute, on average, more than 400 hours of content are being uploaded on YouTube and ready to serve. There's an enormous amount of learning that went into that, which we can apply to this new YouTube TV experience to make it reliable and flawless."

There are plenty of gaps in the lineup. Subscribers won't be able to watch anything from Viacom (Comedy Central, MTV), Discovery Communications, AMC Networks, A+E Networks (History, A&E), or Turner Broadcasting (CNN, TBS, TNT), to name

a few. Replicating the entire cable-TV bundle would have been too costly, Wojcicki says. Instead, her team targeted a selection of channels that would deliver the essential elements—particularly live sports. Through the deals with Fox, CBS, NBC, and ABC (whose parent company, Disney, owns ESPN), YouTube TV subscribers will be able to watch pro and college football, basketball, soccer, baseball, hockey, tennis, and golf. "We've designed the service to be great for sports lovers," she says.

The selection will likely grow and evolve. Additional tiers of programming—catering to fans of comedy, say, or European soccer—could eventually be added and subscribed to for an extra monthly fee. "The mix in a couple years will be the result of lots of learning, lots of testing," says Robert Kyncl, YouTube's chief business officer.

Once upon a time, the notion that TV programmers would give their blessing to YouTube to distribute any of their precious goods would have been preposterous. When the video-sharing site made its debut in 2005, users frequently posted clips that were taken without permission or payment from big media companies. Much teeth-gnashing ensued. In 2007, Viacom Inc. sued YouTube for copyright infringement, seeking \$1 billion in damages. (YouTube denied it did anything wrong.)

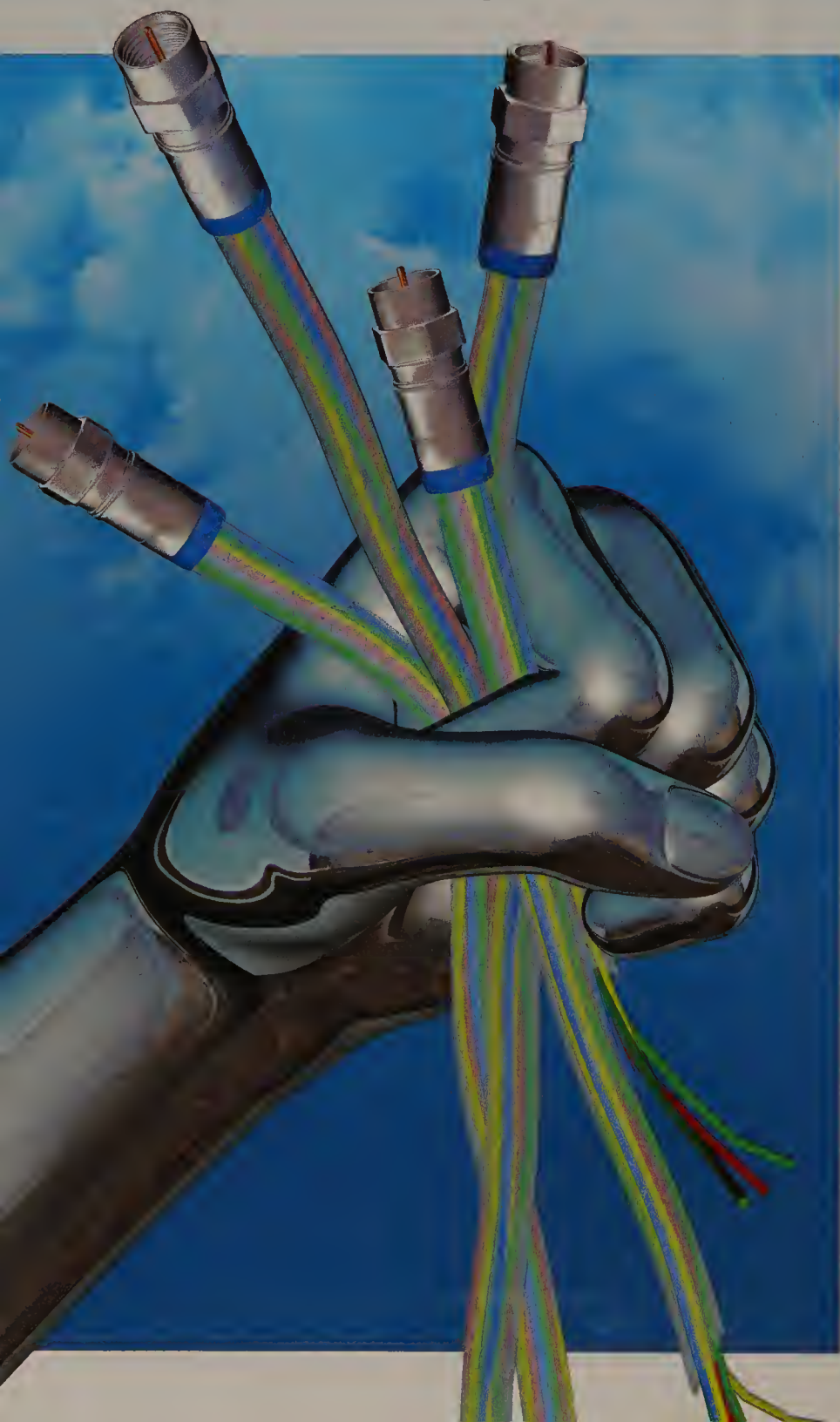
By the time that suit was settled seven years later for an undisclosed sum, relations between YouTube and the TV industry were thawing. YouTube engineers were rolling out stronger filters for keeping unauthorized material off the site, and over time, a vibrant culture of indigenous YouTube "creators" took hold. Moonstruck teenagers ate it up. YouTube started inking deals with networks to re-air programming highlights, cutting whoever made the shows in on the resulting ad revenue. "We've proven that we are a friend," Kyncl says.

And a wildly rich friend at that. The largest TV networks stand to benefit from YouTube TV and its rival services in part because, to gain entry to the market, the deep-pocketed newcomers are likely coughing up significantly more per subscriber than established distributors.

"We are really open to being in business with anybody as long as they pay us fairly and appropriately for our content," says Leslie Moonves, chairman and CEO of CBS Corp. "The YouTube people were terrific to deal with. They have a very young constituency, which is something we're always trying to reach. They are very attuned with what we do and what our needs are." Moonves declined to say how much YouTube is paying CBS but called it "a very fair deal for both parties."

There is growing hope among media companies that the new web-TV bundles—backed by well-funded, millennial-mesmerizing brands such as YouTube—could reverse any slide in the overall number of pay-TV customers in the U.S. Peter Rice, head of 21st Century Fox Inc.'s networks group, estimates that the services will attract 2 million to 3 million subscribers by the end of this year. That's similar, he says, to the growth of satellite TV in the mid 1990s. "It's a very rapid pickup," he says. "I'm really excited about where it's going and what it'll mean for our business."

Likewise, native YouTube programmers say they're salivating over the dawn of YouTube TV, which will put their shows on equal footing with the big TV



"WE'VE PROVEN THAT WE ARE A FRIEND" TO THE TV NETWORKS

brands. "The idea that our series and movies could be on a slate of programming with all this other quality content from major TV networks is really appealing to us," says Burnie Burns, who co-founded Rooster Teeth Productions LLC, a webcentric company in Austin.

The new service won't be YouTube's first effort to collect monthly charges from customers. In 2015 the company launched YouTube Red, which for \$9.99 a month lets subscribers watch videos and listen to music on YouTube without seeing any ads, while also getting exclusive access to original YouTube movies and series. But most of the content on YouTube has always been available to everyone for free. Getting large numbers of its target audience to pay for network TV will likely be a challenge. Historically, persuading millennials to pony up for online programming has been a bit like asking a roundtable of toddlers to discuss the finer points of moral philosophy.

Even so, the company's executives say they plan to market the service primarily on the web, targeting existing YouTube users. There are reasons to believe, they argue, that youngsters' resistance to paid content may be weakening. Kyncl points to the growing number of young people paying for streaming services such as Netflix. "We believe the time is right," Kyncl says.

YouTube CEO Wojcicki says the company isn't worried about short-term profits. "The approach we've taken with all new products is looking at: Are we solving a real problem? Is this something we care about? And if we are successful, will it make a difference?" she says. "Ad-supported TV is one of the largest industries in the world. We see all these ways the experience could be better: search, recommendations, cloud storage. For Google, as an advertising-supported information company, it's a good investment."

For years, advertisers have paid less for placement on YouTube than on traditional TV, despite the company's

relentless efforts to close the gap. That's because, in part, of lingering concerns among some big brand managers over the unpredictable, and sometimes rank, quality of YouTube's videos. The uneasiness isn't entirely unwarranted. Recently, Felix Kjellberg, an immensely popular Swedish YouTube performer who goes by the handle PewDiePie, posted a series of clips with anti-Semitic content. In the ensuing controversy, Google scrambled to stop serving ads from its premium advertising service to his channel and canceled his original YouTube series. (Kjellberg didn't respond to a recent request for comment by Bloomberg News. In a video addressing the controversy, he apologized for using language that some found offensive.)

All of this can make traditional TV programming look appealingly safe by comparison. One of the potential benefits of the new service for Google is that it will position a large amount of high-end, advertiser-friendly TV programming alongside YouTube videos—which could eventually diminish the underlying rationale for the wide variance in ad pricing between the two genres. For now, though, Google will have little sway over the advertising seen on YouTube TV. The bulk of the ads will be controlled by the TV networks and will be largely indistinguishable from what viewers are accustomed to seeing on satellite and cable. YouTube executives believe that someday they'll be able to exert more control. "If you look at TV advertising today, it is not personalized at all," Wojcicki says. "Everybody in the Bay Area gets the same TV ad. So I think there will be interesting opportunities over time to make the experience better for advertisers—more measurable, more relevant."

And perhaps more likely to reach that most elusive of creatures: the rangy, ad-averse American teenager. "We're bringing a lot of simplification to the TV process," Wojcicki says. "For a new generation of viewers, this is going to make much more sense." **B** —With Lucas Shaw

A photograph of a protest in Bolivia. In the background, there is a large cloud of white smoke or tear gas. Several people are visible, some wearing blue and red clothing. In the foreground, a person wearing a brown jacket and a helmet is holding a long, thin stick or baton, pointing it towards the left. The title "A DEATH IN THE ANDES" is overlaid in large, bold, black letters.

A DEATH IN THE ANDES

Everyone in Bolivia knows who murdered Rodolfo Illanes. So why is his death such a mystery?

By Monte Reel

Rodolfo Illanes, the vice minister in charge of domestic affairs in Bolivia, held his cell phone to his left ear and struggled to hear the voice on the line. Dozens of angry men crowded around him, some holding heavy wooden sticks, some shouting insults. They were miners, and for a week they'd been blocking several strategic highways throughout the country, demanding changes to a new national mining law.

"They've taken me hostage, minister," Illanes said, speaking on the phone to Carlos Romero, Bolivia's minister of

government affairs. "I was just entering Mantecani alone, and I was counting how many miners were on the hillsides..."

He'd left the capital city, La Paz, early that morning, Aug. 25, with his driver, and they'd arrived at Mantecani about two hours later. Traffic on the four-lane highway was backed up for miles, blocked by piles of boulders, burning tires, and thousands of protesting miners. The driver steered his Toyota Land Cruiser off the pavement and parked on the rocky plain.

Illanes confronted a sweeping vista: At 13,500 feet above sea level, there were no trees on the chalky plateau, only scattered eruptions of scrub brush. Thin lines of white smoke uncoiled



Clashes at a
roadblock on
Aug. 25, the day
Illanes was killed

from distant fires. Hundreds of miners, members of a loose federation of mining cooperatives, walked the hills between their temporary encampments and the highway they'd paralyzed.

When the first miners confronted Illanes, they viewed him as an enemy spy. The day before, two miners had been killed at a roadblock in the central Bolivian city of Cochabamba. The exact circumstances of their deaths were murky. Police had been tossing tear gas canisters to clear the roads, and miners were lobbing dynamite toward the police to push them back. Miners said federal police shot the two men, but the government insisted that none of the officers at the blockade

had been armed. Dozens of miners were arrested, accused of inciting violence.

Now, as they surrounded Illanes, the workers wanted the jailed protesters released. Illanes handed his cell phone to the miners so they could explain their demands to his boss, Romero. With his hands now free, Illanes pressed a white handkerchief to his nose; when he pulled it away, it was bright red.

One of the miners admitted to Romero that several of the men had roughed up Illanes, but he said things had calmed down. "Listen, we're not mistreating your friend—we're guarding him," the man told Romero. "But we need you →

to do your part, too." To guarantee Illanes's safety, the miner said, the government had to release the jailed miners and tell the police to back off.

About a half-hour later, Illanes called the minister again; his abductors were running out of patience, he said. A rumor was swirling around the blockade that another protesting miner had been struck by a bullet. As Illanes spoke to Romero, several of those crowding around him shouted threats.

"It's life or death!"

"Ten minutes! Or else we butcher you!"

In La Paz, Romero announced news of the kidnapping, and the media scrambled to follow up. One radio station managed to call Illanes in the middle of the ordeal ("I'm fine, I'm fine," he insisted), and cell phone video of the confrontation surfaced on the web, presumably uploaded by an anonymous miner. But Illanes stopped responding to calls late that afternoon. His driver, who had been separated from him that morning, had escaped to safety after being beaten, but he had no idea where the miners had taken Illanes. The blue Land Cruiser had been blasted with dynamite and burned to a colorless shell.

Shortly after midnight, a blue-striped blanket was found beside a dark stretch of highway a few miles from the blockade. Illanes's body lay underneath. His ribs had been broken, his genitals mutilated, and his skull crushed. The medical examiner who performed the autopsy estimated that he'd been tortured for as long as seven hours.

"I don't understand," President Evo Morales said at a news conference the morning after the killing. For years he'd worked closely with Illanes, whom he considered a loyal surrogate. Morales, the leader of the Movement Toward Socialism party or MAS, had been elected in 2005 after promising to rebuild the poorest country in South America on behalf of its indigenous majority and its laborers. Miners—the heart of the industry that has historically been Bolivia's most important and most iconic—helped get him elected. Illanes had spent years championing the rights of the impoverished miners who dug for tin, zinc, lead, and other minerals, and he became Morales's point man for the sector. "I don't understand how we could have brothers in the cooperatives who would attack in this way," Morales said.

On the surface, the murder wasn't a mystery at all. Everyone knew who'd done it (the miners in the video), why they'd done it (revenge), and how (bludgeoning with sticks, stones, and mining helmets). But in the months after the killings, Bolivians sought deeper explanations, trying to identify the social and economic forces behind the violence—underlying causes of death that didn't show up in the coroner's report.

"The prices of minerals went down, and production costs went up—that's the cause," Samuel Doria Medina, a businessman and the leader of a political party opposing Morales, told the Bolivian press.

By most reckonings, the plot was much thicker than that. Morales publicly blamed the violence on "certain foreign interests" that were trying to manipulate the mining industry to destabilize his socialist government. The law that had so upset the cooperatives prevented them from directly entering into new business partnerships with private companies—partnerships that the cooperatives argued were necessary for them to be competitive and profitable and that the government said unfairly exploited Bolivia's resources. Morales was suggesting that U.S.-backed opponents of his administration, eager to install a government more friendly to multinational corporations, had stoked the mining conflict to trigger an unconventional coup.

To his critics, it sounded as if he'd ripped a well-worn page

from the autocrat's playbook—when economic pressures expose the government's vulnerabilities, find an external enemy to blame. They countered Morales's conspiracy theory with one of their own: The president and his political allies had secretly orchestrated the murder of their own man to turn public opinion against the miners, thereby allowing the state to seize the cooperatives' business operations without resistance. If the president's populist rhetoric had once convinced the miners that he'd help lift them out of economic hardship, they said, the commodities crisis had exposed his true, overriding motives—to consolidate more power for himself.

The story has played out like a murder mystery in reverse. With each passing month, a brutal yet relatively uncomplicated killing has grown increasingly complex. Only one clear conclusion has emerged: As a tiny country that pulls most of its revenue out of holes in the ground, Bolivia is still defined by its struggle to assert control of its own fate. The country has long considered itself a poor man sitting on a pile of riches, unable to cash in under the rules of international capitalism, the victim of ironies too tragic to reconcile. Illanes walked straight into that storyline, and it overpowered him.



Cerro Rico, or the "rich mountain," looms over

the city of Potosí. Once it was the most valuable property in the New World, the closest thing to El Dorado that the conquistadors would find.

After the Spaniards discovered it in 1545, the silver inside Cerro Rico transformed Potosí into

the Western Hemisphere's biggest metropolis,

with a population greater than that of London, Seville, or Milan. Obviously it didn't last. The bottom first fell out of the local economy around the end of the 17th century; the mountain's easiest-to-reach veins ran dry, and a shortage of mercury, a vital ingredient for extracting silver, drove up processing costs. Speculators moved on, and most of the vitality drained out of the city. But mining remained Potosí's only real industry, and it has endured cycles of modest booms and painful busts ever since.

Today, next to the city's central square, a museum occupies the building that once served as Spain's most important mint. On the day I visited, two months after Illanes's death, a guide led a group of Bolivian schoolchildren through its halls, explaining that the world's first global currency was made here, and that, as a result, Potosí can be considered the cradle of international capitalism. After the students examined some old Spanish coins, the guide led them down a flight of stairs to a room where indigenous slaves had labored in subhuman conditions to press and cut all that metal. He said that a few miles away, inside the tunnels of Cerro Rico, as many as 8 million slaves had died to enrich a foreign empire. The lesson the students took with them was clear: The global economy had a dark side from the beginning.

That same day, I hired a former miner to take me to an active shaft on Cerro Rico. The stones supporting the entrance, which was about 5 feet wide and a few inches taller, were darkened with black blotches. The stains, my guide explained, were from the blood of a llama slaughtered four months before, a ceremonial ritual meant to slake the bloodthirst of the god of the mine. Better llama blood than human blood—that's the thinking. But rituals go only so far. After almost 500 years of digging and dynamiting, Cerro Rico is honeycombed with unstable shafts that occasionally collapse. According to local humanitarian groups, the life expectancy for miners in Potosí is somewhere between 35 and 45.

A narrow-gauge rail track exited the mine and twisted around the mountainside. Near the entrance, sitting atop the rusted hulk of an overturned mining cart, I found two members of Unificada, one of the largest mining cooperatives in Potosí. Every so often, a pair of sweating miners would push a cart freighted with hundreds of pounds of rocks past them on those rails.

"Little by little, it saps your strength," said Mario Marino, watching the rocks rattle past. He guessed that, at 52, he was one of the oldest miners on the mountain. He started mining Cerro Rico when he was 13, just as his father had. Since then, he calculated, he's spent more of his waking hours in total darkness than in light. He'd inhaled countless lungfuls of dust, cultivating a hair-trigger cough.

"Silicosis," he said.

Marino explained how the mines run. Almost 40 cooperatives operate in Potosí, and each has the right to work different shafts. The smallest of the cooperatives might have just a couple dozen members; the largest, such as Unificada, can have 1,000 or more. The cooperatives aren't traditional profit-sharing outfits. Individual members, or *socios*, share the rights to specific concessions, but it's up to the miner to find and exploit profitable deposits within the concessions. If a member is lucky, he (or, in extremely rare cases, she) might make enough money to outsource his labor, hiring a low-level miner—a *peón*—to dig on his behalf. *Peónes* lack insurance and job security, and they scratch out a pittance. Some *socios* become wealthy, and critics of the system have accused them of conspiring with private companies to exploit the *peónes*.

Marino started as a *peón* in the 1960s, and he dug mostly for tin, which has replaced silver as Cerro Rico's, and Bolivia's, dominant mineral. He became a full-fledged *socio* in the mid-1980s, around the same time the international tin market went bust. The Bolivian government began closing state-owned mines, laying off thousands of miners. Cooperatives such as Unificada absorbed many of those displaced workers, a trend that continued into the

'90s, when successive governments embraced free-market economics and continued to privatize state-controlled industries. Today, cooperatives account for about 90 percent of all miners in Bolivia, or about 120,000 people. The remaining 10 percent work directly for private companies or the state.

Despite this manpower advantage, the cooperatives aren't particularly productive, accounting for only about 30 percent of Bolivia's mining output. State and private companies generally get the most sought-after concessions, leaving the cooperatives with mines where the best veins have already been bled dry. Making matters worse, many cooperatives lag decades behind when it comes to extraction and processing technology. To extend the mine shafts, they depend on dynamite, picks, and shovels.

The margins are slim, even in the best of times. And these are far from the best of times. In late 2015, the Bloomberg Commodity Index, a measure of 22 raw materials, reached a 16-year low, and in some cases the prices the miners got were half what they'd been five years before. The prices of a few minerals, including lead and zinc, have bounced back, but others remain depressed, and Marino says the slump has cost him more than money. He always assumed his four sons would follow him into the mines; the two oldest have, but his youngest sons have fled Potosí in the past year for brighter prospects—one to La Paz and the other to Argentina.

This was the context in which Marino and other members of his cooperative began establishing partnerships with international mining corporations. The cooperatives could offer manpower and access to deposits, and the corporations could bring technology and processing know-how. With the new law restricting future deals and potentially threatening existing arrangements, the anxiety the miners were already feeling took on a sharper edge.

Marino, like almost everyone else in his cooperative, didn't hesitate to join the road blockades around the



Illanes's funeral in La Paz

country in the week before Illanes was killed. (He demonstrated close to home, some distance from Mantecani.) The protests felt like an assertion of will, he said, a refusal to sit idly by while someone else decided their fates.

If anyone should have understood the miners' point of view, he added, it was Evo Morales. Not too long ago, the president had been a lot like them.

In August 2006, a group of cooperative miners climbed onto the back of a flatbed truck in the highland town of Llallagua for a 30-hour journey to the city of Sucre, where a newly formed citizen's assembly was getting ready to rewrite the Bolivian constitution. Morales had been elected president months before, on the promise to "refound Bolivia" through constitutional reforms that would for the first time guarantee social and economic justice for the country's indigenous citizens, who make up more than 60 percent of the total population. None of the miners in Sucre were from the 255-member constituent assembly, but almost all were of either Quechua or Aymara descent. They wanted to witness history.

I climbed onto the truck with them, to report an article about the significance of the event among members of the indigenous majority. When we started out, about two dozen men crowded together in the back. The 250-mile journey wasn't smooth—a flat tire, brake worries, frequent stops in tiny villages to let more people squeeze on. The narrow switchback roads were unpaved, with no guardrails along the edges of the steep cliffs. Every bump sent a vibration up the spine and into the teeth, which were full of grit kicked up from the roads. As the ride neared its end, about 40 people were crammed in back. It should have been miserable, but it was a party. The miners banged on goat-skin drums, blew into pan flutes, and passed around jugs of *cocoroco*, a crude liquor that's 96 percent alcohol. Every so often someone would shout, "*Viva la asamblea constituyente!*"

So many of their dreams were tied up in Morales. Not only was he the first Bolivian president of indigenous descent, but he was also a *compañero*—the former leader of a coca growers' union and a hell-raising thorn in the government's side. He'd led a series of road blockades and demonstrations that in 2003 ousted a president and turned Bolivian politics upside down. That conflict left about 80 people dead; almost all the casualties had been protesters, several of them miners, who were shot by government police forces. The initial demonstrations had been fueled by discontent over the distribution of profits from natural gas—specifically, by the belief that foreign corporations were filling their pockets at Bolivians' expense. The subject resonated with many miners. "How much longer," Morales asked an audience during the conflict, "will the natural resources of Latin America remain in the hands of transnational companies?"

When the truck from Llallagua rolled into Sucre, the miners joined a huge street rally celebrating all things Evo, while the assembly got down to the contentious business of drafting a national charter. A 179-page document was eventually approved in 2009. One of its articles pledged support to the mining cooperatives "that contributed to the country's social and economic development." As far as the miners were concerned, the government had officially endorsed them.

The economy took off in the early years of the Morales presidency, assisted by a commodities boom. He fulfilled many promises that his critics had insisted would sink the economy. He nationalized the natural gas industry, increased government spending on social services 45 percent, and raised the

real minimum wage more than 85 percent. Extreme poverty declined more than 45 percent, according to government statistics, and in a country that had burned through five presidents in the five years before he took office, Morales pulled off the most unlikely of feats: He restored political stability to South America's most volatile country.

Morales was part of the "New Left," an informal coalition of presidents elected in the 2000s throughout South America. All were openly skeptical of market-based solutions to social problems. Several, including Brazil's Luiz Inácio Lula da Silva and Chile's Michelle Bachelet, considered themselves economic pragmatists, careful to preserve foreign investment opportunities and private-sector growth. Others—Venezuela's Hugo Chávez among them—cast themselves as fist-shaking revolutionaries. Morales favored the Chávez model. Like Chávez, he railed at the International Monetary Fund and the World Bank, and he expressed particular contempt for the U.S.—"the Empire," as he calls it. In 2008 he expelled the U.S. ambassador, whom he accused of plotting to overthrow him, and he hasn't allowed another one in the country since.

**All of this
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Illanes's
murder
under-
scored:**

Through it all, Morales treated mining with a light touch. He targeted a few high-profile concessions for state takeovers, including three run by Glencore Plc of Switzerland, but the broad nationalization of the sector that some investors feared never came. He continued to court foreign mining investment, and the U.S., despite diplomatic tensions, remained his country's most valued buyer of minerals.

When commodities prices began falling in 2011, Bolivia's South American neighbors suffered badly. Chávez's oil-based economy in Venezuela was

TRUTH
**in Bolivia
is relative**

almost destroyed; his protégé, Nicolás Maduro, now rules over a country in a state of prolonged collapse. The biggest economies on the continent, including those of Brazil and Argentina, began to stagnate, and many leaders of the New Left were replaced by more conservative successors. Morales has fared better than most. Although the days of 7 percent gross domestic product growth are gone, forecasts indicate a respectable pace of about 3.5 percent until 2020.

The strain, however, is starting to show. Groups that once supported Morales have grown frustrated. Bus drivers blocked roads to protest a fuel price hike in 2011, and a general strike against the government's pension system was joined by miners, teachers, and health-care workers in 2013. Early in 2016, Bolivia held a referendum to decide whether Morales could, despite term-limit restrictions, run for a fourth presidential term in 2019. The proposition was defeated, with 51.3 percent of voters opposing. It was a low point for Morales,

and he insisted that his opponents had manufactured a scandal—one involving political graft and a child born out of wedlock—to sabotage his chances.

The new mining law soon followed. The protests suggested that Morales had misjudged the loyalty of the mining cooperatives—it was situational, not ideological. But to the president's backers, it seemed as if the miners, in choosing private corporations over government protectionism, were volunteering to be exploited. The government needed someone to talk to the protesters, to assure them that their outrage was unwarranted. Rodolfo Illanes had practically spent his life preparing for the role.

Illanes was a short, round-faced man whose eyes seemed to disappear behind his glasses when he smiled. The camera rarely captured those moments, though. More often than not, the quality that shone through was a bookish solemnity. He was a lawyer who'd spent much of his career in academia, and his lectures always underscored his conviction that words on paper—statutes, resolutions, preambles, amendments—held the power to change lives.

He'd grown up in Garita de Lima, a gritty La Paz neighborhood of market stalls, pickpockets, and skinny, bat-eared dogs. In law school his politics veered left, toward the opposition movements challenging the military dictatorship that ruled Bolivia from the 1960s to the early 1980s. He immersed himself in labor law and fashioned himself a champion of the worker. In the mid-'80s he moved to Llallagua to help establish a national university tailored to miners and their families. The school, he believed, was a first step in reversing centuries of exploitation.

Illanes considered himself ethnically indigenous, a Bolivian of Aymara descent. When Morales, also Aymara, burst onto the national stage in the late 1990s, Illanes discovered a kindred spirit. He joined Morales's party, MAS, and quickly found a niche. Morales could fire up followers and get them to turn out at protests, but he lacked legal and administrative fundamentals. That's where Illanes fit in. After Morales became president, Illanes filled a number of roles: legal adviser, civil service superintendent, senior official in the labor ministry. About five years ago, he began working directly with Morales in the presidential palace.

The official cause of Illanes's death was blunt force trauma to the head and thorax. Morales offered an alternative post-mortem. "This is a political conspiracy," he announced. Foreign interests, he said, had taken advantage of the cooperatives to sow chaos and, ultimately, to try to overthrow his government. When it came to the Illanes case, he and his allies suggested, nothing was what it seemed.

José Luis Quiroga, Illanes's protégé at the ministry, had traveled to the blockade the same day Illanes was kidnapped, and he helped collect his boss's body early the next morning. Quiroga told me he believed the deaths of the miners at the roadblock had been effectively staged. The bullet wounds of one man, he said, showed that he'd been shot at close range with a small-caliber firearm. Yet that miner had been standing among a group that had backed away from police, he said, and no officers could have been close enough to fire the shot. The miners themselves, he suggested, had sacrificed one of their own to foment outrage against the government and undermine the state.

Less than a week after Illanes was killed, the government lashed back at the cooperatives. By emergency decree, it invalidated dozens of concessions where they were working

directly with private corporations and took control of 31 of those properties. The government also called for thorough audits of the cooperatives' finances and outlawed the use of dynamite at protests.

The miners felt defeated, victimized almost, and they developed their own theory to explain Illanes's murder. In their version, he was a pawn in a plot engineered by the government to sink the cooperatives. Why hadn't the government responded to the miners' demands? Why hadn't the authorities attempted to rescue Illanes after he was kidnapped? The miners insisted the answer was clear: Morales and his cronies sacrificed Illanes, knowing his death would turn the public against the cooperatives. None of the miners I spoke with expressed anything resembling remorse, or even indirect responsibility, for what essentially amounted to a lynching. This explanation, which each of them echoed with convincing sincerity, relieved them of those burdens.



On my last day in La Paz, I spotted Illanes's

face—grim, bespectacled, and staring out from a kiosk papered over with newsprint and magazine covers. His picture was on the front of an edition of *Crucimaniacos*, a magazine of crosswords and other word games. I bought a copy. The first puzzle I tried was a word search with the mining conflict as its theme. Most of the key words, hidden inside a mess of jumbled letters, were common nouns that seemed to suggest the possibility of an amicable resolution: generosity, equality, solidarity, tolerance, dialogue, and peace. All were easy to find, on paper.

Elsewhere, the concepts proved elusive. In the six months following Illanes's murder, almost 50 people were arrested in connection with the crime; 14 remain in custody, and investigations into their alleged involvement continue. Among those arrested have been the leaders of a national federation of cooperatives. New leaders, more friendly to Morales's government, have taken over.

In February another suspect in the killing was apprehended. The man, the government said, had been living inside a Llallagua mine shaft, his fellow miners helping keep him hidden. The same week, an opposition politician, Arturo Murillo, published a list of cell phone calls and text messages that he said Illanes had made on the day of his murder. There were more than 130 of them, many to police and government officials to whom he appealed for assistance. In March the former commander of the regional police—one of the people Illanes had turned to for help—is expected to appear in court, charged with abdicating his duties.

All of this has only reinforced the idea that Illanes's murder underscored: Truth in Bolivia is relative. In late February the central worker's union, the COB, led countrywide protests against Morales, who in recent months has hinted that he'll ignore last year's plebiscite and pursue another term in 2019. Government officials organized counterprotests, claiming the referendum results were irrelevant; the opposition had floated false news stories about Morales right before the vote, they said, unfairly spoiling the results.

At a pro-Morales march in Potosí, the mining minister, Carlos Navarro, told a Bolivian newspaper that he and other officials were participating to commemorate last year's referendum, which the government now calls "the Day of the Lie." Even though the "no" side had won, he suggested, few things in Bolivia are what they seem. "It is a day," he said, "to reaffirm that Bolivians also said, 'Yes.'" **B**



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worldwildlife.org/together



**Spring
Fashion 2017**

Give Up Your Boring Gray Suit



**Change your outfit,
change your life**

Fashion editor: Shibon Kennedy

Photographs by Eric T. White

Let's face it: Wearing the same professional suits and separates day after day gets old. And when your look gets tired, everything around you starts to seem that way, too. Pump some excitement into your closet with outfits inspired by this season's hottest trends, from Victorian florals to adventure-inspired dressing. Your cubicle will never be the same.

Mod Rom

Old-w

Adam Lippes dress, \$1,190; adamlippes.com. Adam Lippes pants, \$1,550; nordstrom.com. Ana Khouiri earrings, \$1,700; Dover Street Market, 160 Lexington Ave., New York. Eddie Borgo bracelet, \$250; eddieborgo.com. Neil J. Rodgers shoes, \$595; neiljrogers.com

Square shoulders give a ladylike dress a power twist.

Major sleeves are in the middle of a major moment.

Creatures of the Wind dress, \$1,895; Saks Fifth Avenue, 611 Fifth Ave., New York. Ana Khouiri earrings, \$1,452; Barneys, 660 Madison Ave., New York. Larsson & Jennings watch, \$315; larssonandjennings.com. Schutz shoes, \$220; schutz-shoes.com



ern ance

drama meets
world cool

Valentino dress,
\$9,500; Valentino
boutiques. Eddie
Borgo bracelet, \$355;
eddieborgo.com. Eddie
Borgo ring, \$130; Jeffrey,
449 W. 14th St., New York.
Pierre Hardy sandals,
price on request; similar
styles available
at pierrehardy.com

An on-trend
sheer overlay
helps lighten
up a serious
look.

Agnona dress, \$2,290;
Agnona, 754 Fifth Ave.,
New York. Larsson &
Jennings watch, \$335;
larssonandjennings.com.
Aquazzura sandals, \$850;
aquazzura.com

Carven dress, \$990; Saks
Fifth Avenue, 611 Fifth Ave.,
New York. Valentino bag,
\$2,045; Valentino boutiques.
Alumnae sandals, \$650;
alumnae.nyc

New Construction

Build these architectural styles into your wardrobe

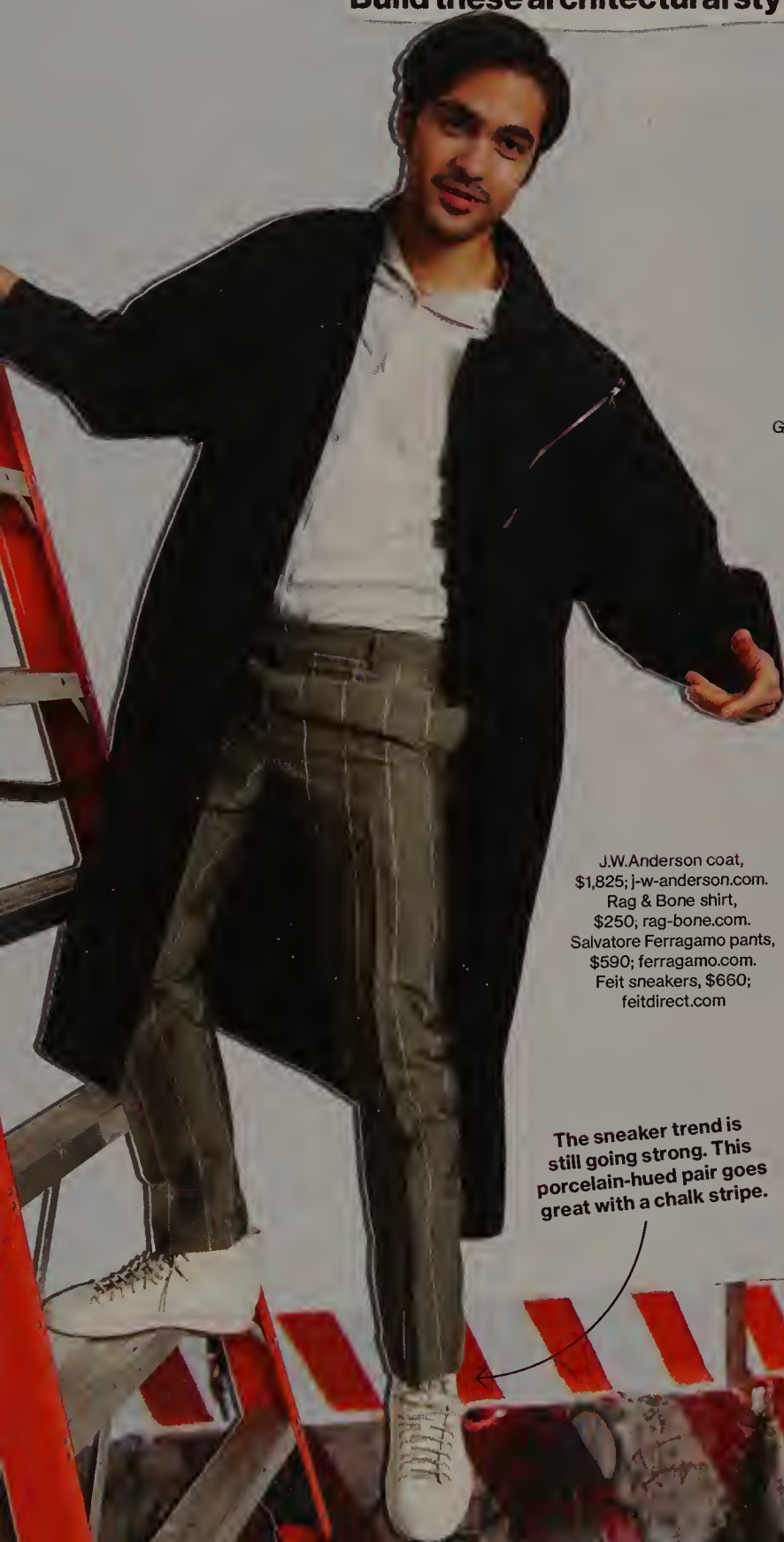
Layering isn't just for winter. Have fun with shorts under a high-slit skirt or cropped pants under a floaty dress.

Christian Dior blouse, \$1,150;
Christian Dior boutiques.
Rosetta Getty shorts, \$780;
Gratus, 427 N. Canyon Dr. #209,
Beverly Hills. Jennifer
Fisher earrings, \$205;
jenniferfisherjewelry.com.
Giuseppe Zanotti sandals, \$1,495;
giuseppezanottidesign.com

J.W.Anderson coat,
\$1,825; j-w-anderson.com.
Rag & Bone shirt,
\$250; rag-bone.com.
Salvatore Ferragamo pants,
\$590; ferragamo.com.
Felt sneakers, \$660;
feitdirect.com

The sneaker trend is still going strong. This porcelain-hued pair goes great with a chalk stripe.

Ruffles are all the rage.



Etc.

Joseph shirt, \$420, and skirt, \$420; joseph-fashion.com. Jennifer Fisher earrings, \$445, and bracelet, \$415; jenniferfisherjewelry.com. Cartier bracelet, \$6,750; cartier.com. Aquatalia shoes, \$395; aquatalia.com

Belt It

Changing up your look is a cinch



The Split: Asymmetry makes the classic skinny belt interesting. Brunello Cucinelli leather split belt, \$745; Brunello Cucinelli, 136 Greene St., New York



The Rope: Get the same effect as the skinny belt but with a statement-making medallion closure. Sportmax satin-rope belt with ceramic circle, \$395; world.sportmax.com



The Ultrawide: Ideal for accentuating your curves. The skinny closure keeps things subtle, and the creamy white plays nicely with this season's pastels. Agnola Corsetto leather belt, \$750; Bergdorf Goodman, 754 Fifth Ave., New York



The Double-Wrap: An extra turn around your waist defines your figure and delivers an added pop of color. Rag & Bone Kiera wrap belt, \$175; rag-bone.com

Vince shirt, \$295; vince.com. Adeam skirt, \$675; Fivestory, 18 E. 69th St., New York. Mykita glasses, \$529; mykita.com. Jennifer Fisher bracelet, \$975; jenniferfisherjewelry.com. Alumnae sandals, \$595; alumnae.nyc

Jil Sander Navy shirt, \$320; jilsander.com. Vince pants, \$275; vince.com. Sportmax earrings, \$195 and \$295; world.sportmax.com. Larsson & Jennings watch, \$335; larssonandjennings.com. Alumnae sandals, \$525; alumnae.nyc

Jeffrey Rudes shirt, \$700; freyrudes.com. David Hart pants, \$395; davidhartnyc.com. Aquatalia shoes, \$395; aquatalia.com



The high rise and tab waistband help balance the shorter cut of these khakis.



The Sporty: Don't be intimidated by technical details like a molded foam sole and wide elastic straps. They offer more stability and foot coverage than more traditional-looking styles. Salvatore Ferragamo slip-ons, \$920; similar styles available at ferragamo.com



The Slingback: The grosgrain straps and graphic white trim will take you straight from summer Friday to a summer cookout. Want Les Essentiels Jobim sandals, \$295; wantlesselements.com



The Velcro: More Teva look-alikes, this time in fine, brushed leather with subtle broguing at the heel. Sacai leather sandals, \$1,250; sacai.jp

The Heel: Keep it low and stacked for ease of wear. The pearls on this pair give them added punch. Nicholas Kirkwood Casati pearl two-strap sandals, \$895; nicholaskirkwood.com

Line 'Em Up

Mix-and-match stripes
are edgy and easy

Jil Sander jacket, \$2,130, and pants, \$920; jilsander.com. Creatures of Comfort shirt, \$250; creaturesofcomfort.us. Ana Khouri earrings, \$5,000; Barneys, 660 Madison Ave., New York. Salvatore Ferragamo sandals, \$695; similar styles available at saksfifthavenue.com

Matching separates give you tons of flexibility. We put them together as a streamlined look or apart, paired with your favorite piece

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These trousers have extra volume, but the vertical stripes tone it down.

Todd Snyder jacket, price on request; Todd Snyder, 25 E. 26th St., New York. Andrea Pompilio shirt, \$229.09, and pants, \$516.79; Bloomingdale's, 1000 Third Ave., New York. Armani Collezione pocket square, \$95; similar styles available at saksfifthavenue.com. John Lobb boots, \$1,435; johnlobb.com

Fendi jacket, \$1,300, and pants, \$600; Barneys, 660 Madison Ave., New York. Tommy Hilfiger shirt, \$115.50; Tommy Hilfiger, 681 Fifth Ave., New York. Fendi shoes, \$800; Fendi, 598 Madison Ave., New York

Rhié top, \$325, and skirt, \$528; rhiestudio.com. Mykita sunglasses, \$599; mykita.com. Pierre Hardy bag, \$395; Pierre Hardy, 30 Jane St., New York. Sportmax sandals, \$695; world.sportmax.com

Fendi jacket, \$2,000; Fendi, 598 Madison Ave., New York. Frame top and pants, \$339; neimanmarcus.com. Jennifer Fisher earrings, \$445; jenniferfisherjewelry.com. Aquazzura sandals, \$850; aquazzura.com

Tommy Hilfiger shirt, \$89.50; Tommy Hilfiger, 681 Fifth Ave., New York. A.P.C. shirt, \$180; apc.fr. Vince pants, \$395; Vince, 980 Madison Ave., Space A, New York. Aquatalia shoes, \$395; aquatalia.com

Top It

These ain't your grandpa's baseball caps



The Tweed: Suiting fabric finds a new use in this civilized yet relaxed hat. H&M, \$14.95; hm.com



The Classic: Stripped down to the essentials, in a generous cut and saturated color. A.P.C. Louis hat, \$125; apc.fr



The Faux-Leather: Americana meets biker. Acne Studios Camp Grid hat, \$160; Acne Studios, 33 Greene St., New York

The Great Outdoors

Climb every mountain
while looking
utilitarian chic

Adam Lippes jacket, \$1,150;
adamlippes.com. Agnona
jumpsuit, \$2,190; similar styles
at wilkesbashford
.mitchellstores.com. Akubra
hat, \$199.95; delmonicoheader
.com. Pierre Hardy bag,
\$1,695; pierrehardy.com.
See by Chloé sandals,
\$335; mytheresa.com

Overalls +
lace-up
platform
sandals = your
default look
this season.

Maison Kitsune jacket, \$1,100;
kitsune.fr. Salvatore Ferragamo
shirt, \$790, and pants, \$690;
saksfifthavenue.com. A.P.C. hat,
\$125; apc.fr. Barton Perreira
glasses, \$560, and clip-on
sunglasses, \$130; bartonperreira
.com. J.W.Anderson sneakers,
\$525; j-w-anderson.com

Bally jacket, \$1,995; Bally, 628 Madison Ave., New York. 3.1 Phillip Lim sweater, \$375; 31philliplim.com. Orley shirt, \$445; orley.us. A.P.C. shorts, \$220; apc.fr. Pantherella socks, \$28; shop.nordstrom.com. Feit shoes, \$700; feitdirect.com

If you can't get away with shorts, slim-cut chinos will do.

Kenzo coat, \$1,660; kenzo.com. Miu Miu shirt, \$595; select Miu Miu boutiques. Kenzo skirt, \$760; kenzo.com. Ana Khouri earrings, \$3,520; Barneys, 660 Madison Ave., New York. Schutz shoes, \$190; schutz-shoes.com

Bally jacket, \$1,795, and trousers, \$1,150; bally.com. Bally shirt, \$495; Bally, 628 Madison Ave., New York. Cartier bracelet, \$6,750; cartier.com. Aquazzura sandals, \$925; aquazzura.com

Gucci coat, \$2,780; gucci.com. Saturdays NYC sweater, \$165; saturdaysnyc.com. J.Crew shirt, \$118; jcrew.com. Ring Jacket pants, \$375; thearmoury.com. Aquatalla shoes, \$695; aquatalla.com

Carry It

Hands-free bags are functional and fashionable

The Utility Belt: Perfect for stashing credit cards, keys, and other small items for an afternoon out. In vegan faux-leather for the eco-conscious. Stella McCartney Alter Nappa belt bag, \$1,210; Stella McCartney NY, 112 Greene St., New York



The Fanny Pack: Made from multihued brown leather, this one's definitely not for tourists. DKNY leather belt bag, \$398; select DKNY boutiques



The Canvas: Brave the urban jungle with this safari-ready pack. The straps on the front have a classic buckle look, but post-and-tab closures make them quick to open and close. Ghurka Explorer No. 239 backpack, \$1,295; ghurka.com



The Camo: The sleek cotton-nylon shell and mellow blue print will help you fit in at even the hottest startup. Sandro camouflage backpack, \$295; us.sandro-paris.com



The Day Pack: A fitting substitute for a briefcase, in rich tobacco-colored leather with a host of interior pockets. Want Les Essentiels Kastrup backpack, \$995; wantlesessentiels.com



Animal-print accessories are totally harmonious and a great way to elevate the outfit.



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